SERVICE MANUAL

Di620

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1155SBG000BA

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1. SAFETY INFORMATION

This copy machine is a digital copy machine which operates by means of a laser. There is no possibility of danger from the laser, provided the copy machine is operated according to the instructions in this manual provided.
Since radiation emitted by the laser is completely confined within protective housing, the laser beam cannot escape from the machine during any phase of user operation.

This copy machine is certified as a Class 1 laser product. This means the copy machine does not produce hazardous laser radiation.

LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT

CAUTION: The use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure. Because of this, Minolta strongly recommends that you operate your copy machine only as described in this documentation.

For United States Users:

Laser Safety

This copy machine is certified as a Class 1 Laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the copy machine does not produce hazardous laser radiation.

CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. Compliance is mandatory for products marketed in the United States. The label shown below indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

WARNING: Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

Internal Laser Radiation

Maximum Radiation Power: 15mW x 2
Wave Length: 780nm

For European Users:

WARNING: Use of controls, adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

This is a semiconductor laser. The maximum power of the laser diode is 15mW and the wavelength is 780nm. (Two provided.)

For Denmark Users:

ADVARSEL
Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

Klasse 1 laser produkt der opfylder lEC825 sikkerheds kravene.

For Finland, Sweden Users:

VAROITUS
Laitteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteiylle.

VARNING
Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laser klass 1.

For Norway Users:

ADVERSEL
Dersom apparatet brukes på annen måte enn spesifisert i denne bruksanvisning, kan brukeren utsettes for unsynlig laserstråling som overskrider grensen for laser klasse 1.

Dette en halvleder laser. Maksimal effeckt till laserdiode er 15mW og bølgelengde er 780nm.

Laser Safety Labels

Laser safety labels are attached to the outside of the copy machine as shown below.

For Europe

For United States

1155O698CB

1155O653AA

1155O699EA

Label inside copy machine

The following laser safety label will be attached inside the copy machine as shown below.

1155G002AA

ALL Areas

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according
to the manufacturer's instructions

Germany only

VORSICHT!

Explosinsgefahr bei unsachgemäßen austausch der
batterie. Ersatz nur durch denselben oder einen vom hersteller
empfohlenen ähnlichen typ. Entsorgung gebrauchter batterien
nach angaben des herstellers.

Denmark only

ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Norway only

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri.
Benytt samme batteritype eller en tilsvarende
type anbefalt av apparatfabrikanten.
Brukte batterier kasseres i henhold til fabrikantens
instruksjoner.

Sweden only

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

Finland only

VAROITUS

Paristo voi räjähtää, los se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä Käytetty paristo valmistajan ohjeiden
mukaisesti.

ALL Areas

CAUTION

"Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used IC Package according to the manufacturer's instruction."

Germany only

VORSICHT!

⇒"Austausch nur durch denselben oder einen vom Hersteller empfohlenen, gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers."

2. SPECIFICATIONS

TYPE	:	Console (with Stationary Platen)
PHOTOCONDUCTOR	:	Organic Photoconductor
ORIGINAL SCANNING	:	Lens Reduction Type CCD Line Sensor
RESOLUTION	:	400dpi, 600dpi
SCANNING DENSITY	:	400dpi × 400dpi, 600dpi × 600dpi
PRINT DENSITY	:	400dpi × 400dpi, 600dpi × 600dpi
COPYING SYSTEM	:	Electrostatic Dry Powdered Image Transfer to Plain Paper
PAPER FEEDING SYSTEM	:	4-Way system Multi Bypass Table: 50 sheets of paper 1st and 2nd Drawer: Each holding up to 500 sheets of paper 3rd Drawer: Holding up to 2,500 sheets of paper
EXPOSURE SYSTEM	:	Mirror Scanning, Slit Exposure
DEVELOPING SYSTEM	:	New Micro-Toning System
CHARGING SYSTEM	:	Comb Electrode DC Negative Corona with Scorotron System
IMAGE TRANSFER SYSTEM	:	Visible Image Transfer by means of a Single-Wire DC Negative Corona with Corotron System
PAPER SEPARATING SYSTEM	:	Single-Wire AC Corona with Corotron System, plus Paper Separator Finger
FUSING SYSTEM	:	Heat Roller
PAPER DISCHARGING SYSTEM	:	Charge Neutralizing Brush
MAXIMUM ORIGINAL SIZE	:	Metric-A3L; Inch-11" × 17"L (L: Lengthwise)

COPY MEDIUM

Paper Source		1st to 2nd Drawer	3rd Drawer	Multi Bypass Table
Medium	Plain paper (60 to 90 g/m^2)	❍	❍	❍
	Transparencies	–	–	❍
	Thick paper (90 to 157 g/m^2)	–	–	❍
	Recycled paper	❍	❍	❍
Dimensions	Maximum (Width × Length)	297 × 432 mm	A4C	297 × 432 mm
	Minimum (Width × Length)	140 × 182 mm	8-1/2" × 11"C	100 × 140 mm

❍: Permissible –: Not permissible C: Crosswise

MULTIPLE COPIES : 1 to 999

WARMING-UP TIME : 7 min. or less with room temperature of 20°C and rated power voltage

FIRST COPY TIME : A4C or 8-1/2" × 11"C: 6.0 sec. or less (in Full size Mode using 1st Drawer)

CONTINUOUS COPY SPEED (copies/min.) Fed from 1st Drawer/Memory Mode:

Area	Zoom Ratio / Size	×1.000
Metric	A3L	35
	A4L	47
	A4C	62
	B4L	40

Area	Zoom Ratio / Size	×1.000
Inch	11" × 17" (L)	35
	8-1/2" × 11" (L)	48
	8-1/2" × 11" (C)	62
	8-1/2" × 14" (L)	41

L: Lengthwise; C: Crosswise

ZOOM RATIOS

Mode / Area	Metric	Inch
Fixed Full Size	×1.000	×1.000
Fixed Reduction	×0.816 ×0.707 ×0.500	×0.785 ×0.733 ×0.647 ×0.500
Fixed Enlargement	×1.154 ×1.414 ×2.000	×1.214 ×1.294 ×1.545 ×2.000
Variable	25% to 400% (in 0.1% increments)	

LENS : Through Lens (F = 4.0, f = 48 mm)

EXPOSURE LAMP : Fluorescent Lamp

FUSING TEMPERATURE : 195°C

POWER/CURRENT CONSUMPTION (Copier Only)

Voltage	Exposure Lamp (Rating)	Fusing Heater Lamp (Rating)	Max. Power Consumption
115 V 120 V 127 V 220 V	24 V 20 W	100V Upper: 700W Lower: 400W	1530 W
240 V			1830 W

POWER REQUIREMENTS : 115 V, 120 V, 127 V, 220-240 V; 50/60 Hz

ENVIRONMENTAL CONDITIONS

Temperature	10 to 32°C with a fluctuation of 10°C or less per hour
Humidity	15 to 85% RH with a fluctuation of 10% RH or less per hour
Ambient Illumination	3,000 lux or less
Levelness	1° (1.75 mm/100 mm)

DIMENSIONS (Copier Only) : Width .... 745 mm (30-1/2”)
Depth .... 735 mm (29”)
Height ... 980 mm (38-1/2”)

WEIGHT : 200 kg (441lbs) (Copier Only)
*excluding the Copy Tray, starter, toner, and paper

3. PRECAUTIONS FOR INSTALLATION

■ Installation Site

To ensure safety and utmost performance of the copier, the copier should NOT be used in a place:

- Where it will be subjected to extremely high or low temperature or humidity.
- Which is exposed to direct sunlight.
- Which is in the direct air stream of an air conditioner, heater or ventilator.
- Which puts the operator in the direct stream of exhaust from the copier.
- Which has poor ventilation.
- Where ammonia gas might be generated.
- Which does not have a stable, level floor.
- Where it will be subjected to sudden fluctuations in either temperature or humidity. If a cold room is quickly heated, condensation forms inside the copier, resulting in blank spots in the copy.
- Which is near any kind of heating device.
- Where it may be splashed with water.
- Which is dirty or where it will receive undue vibration.
- Which is near volatile flammables or curtains.

■ Power Source

- If any other electrical equipment is sourced from the same power outlet, make sure that the capacity of the outlet is not exceeded.
- Use a power source with little voltage fluctuation.
- Never connect by means of a multiple socket any other appliances or machines to the outlet being used for the copier.
- Make the following checks at frequent intervals:
  - Is the power plug abnormally hot?
  - Are there any cracks or scrapes in the cord?
  - Has the power plug been inserted fully into the outlet?
  - Does something, including the copier itself, ride on the power cord?
- Ensure that the copier does not ride on the power cord or communications cable of other electrical equipment, and that it does not become wedged into or underneath the mechanism.

  Use an outlet with a capacity of 115/120/127V, or 220-240V.

■ Grounding

To prevent receiving electrical shocks in the case of electrical leakage, always ground the copier.

- Connect the grounding wire to:
  - The ground terminal of the outlet.
  - A grounding contact which complies with the local electrical standards.
- Never connect the grounding wire to a gas pipe, the grounding wire for a tele-

phone, or a water pipe.

4. PRECAUTIONS FOR USE

To ensure that the copier is used in an optimum condition, observe the following precautions.

- Never place a heavy object on the copier or subject the copier to shocks.
- Insert the power plug all the way into the outlet.
- Do not attempt to remove any panel or cover which is secured while the copier is making copies.
- Do not turn OFF the Power Switch while the copier is making copies.
- Provide good ventilation when making a large number of copies continuously.
- Never use flammable sprays near the copier.
- If the copier becomes inordinately hot or produces abnormal noise, turn it OFF and unplug it.
- Do not turn ON the Power Switch at the same time when you plug the power cord into the outlet.
- When unplugging the power cord, do not pull on the cord; hold the plug and pull it out.
- Do not bring any magnetized object near the copier.
- Do not place a vase or vessel containing water on the copier.
- Be sure to turn OFF the Power Switch at the end of the workday or upon power failure.
- Use care not to drop paper clips, staples, or other small pieces of metal into the copier.

■ Operating Environment

The operating environmental requirements of the copier are as follows.

- Temperature: 10°C to 32°C with a fluctuation of 10°C per hour
- Humidity: 15% to 85% RH with a fluctuation of 10% RH per hour

■ Power Requirements

The power source voltage requirements are as follows.

- Voltage Fluctuation: AC115/120/127/220-240V
  ±10% (Copying performance assured)
  +6%, –10% (AC127V Areas only)
  –15% (Paper feeding performance assured)
- Frequency Fluctuation: 50/60 Hz ±0.3%

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5. HANDLING OF THE CONSUMABLES

Before using any consumables, always read the label on its container carefully.

- Use the right toner. The applicable copier model name is indicated on the Toner Bottle.
- Paper can to be easily damaged by dampness. To prevent absorption of moisture, store paper, which has been removed from its wrapper but not loaded into the Drawer, in a sealed plastic bag in a cool, dark place.
- Keep consumables out of the reach of children.
- Do not touch the PC Drum with bare hands.
- Store the paper, toner, and other consumables in a place free from direct sunlight and away from any heating apparatus.
- The same sized paper is of two kinds, short grain and long grain. Short grain paper should only be fed through the copier crosswise, long grain paper should only be fed lengthwise.
- If your hands become soiled with toner, wash them with soap and water immediately.
- Do not throw away any used consumables (PC Drum, starter, toner, etc.). They are to be collected.

NOTE

Do not burn, bury in the ground, or throw into the water any consumables (PC Drum, starter, toner, etc.).

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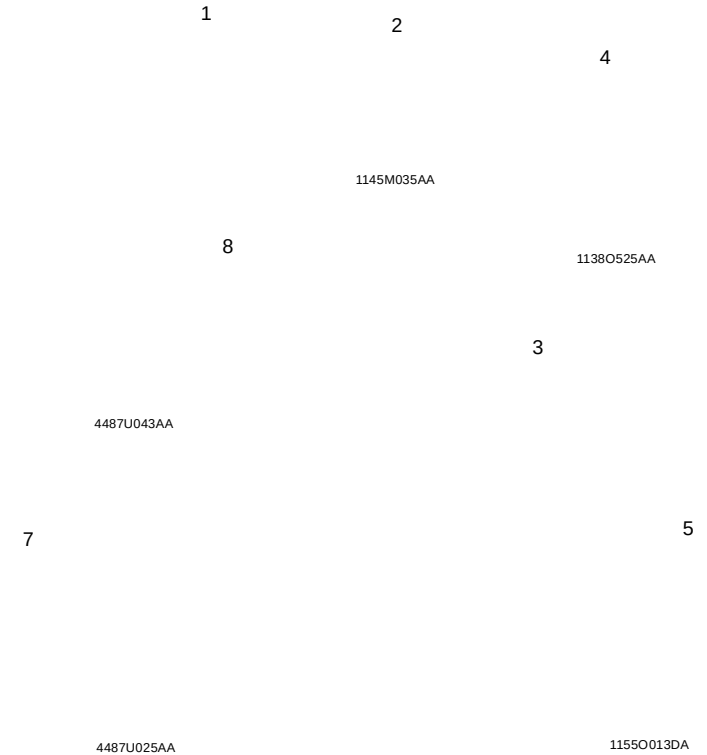
6. OTHER PRECAUTIONS

The Printerhead of this copier uses a laser diode that emits a laser beam. Use the following precautions when performing service jobs at the users' premises.

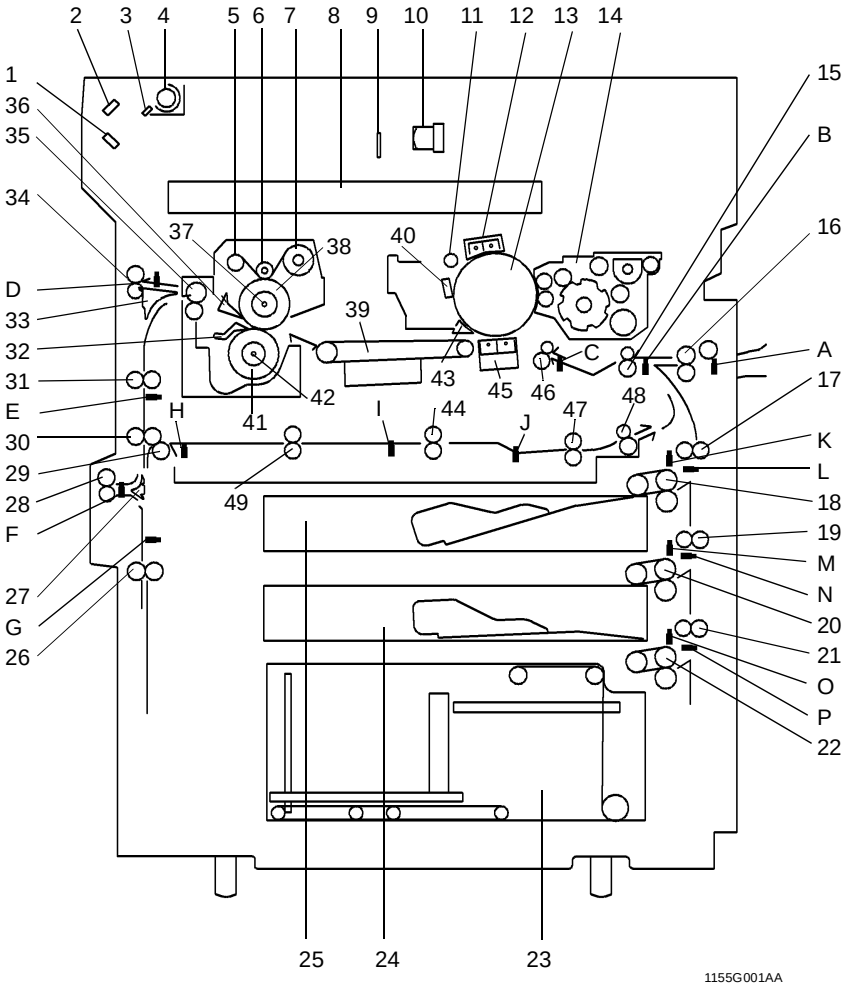
- When a service job needs to be performed in the laser beam path, such as when working around the printerhead and PC Drum, be sure first to turn the copier OFF.
- If the job requires that the power cord be left plugged in, observe the following precautions.
  - Take off your watch, ring, and any other reflective object and wear laser protective goggles.
  - At the job site, select a place that is as far as possible away from the users and that is enclosed by walls.
  - Do not bring a highly reflective tool into the laser beam path during the service job.

7. SYSTEM OPTIONS



1. Data Terminal DT-103
2. Plug-In Counter
3. Electronic Document Handler EDH-1
4. Data Controller D-102
5. Large Capacity Cassette C-304
6. Finisher FN-3
7. 16MB Memory
8. Hard Disk Drive Kit

1. CROSS-SECTIONAL VIEW

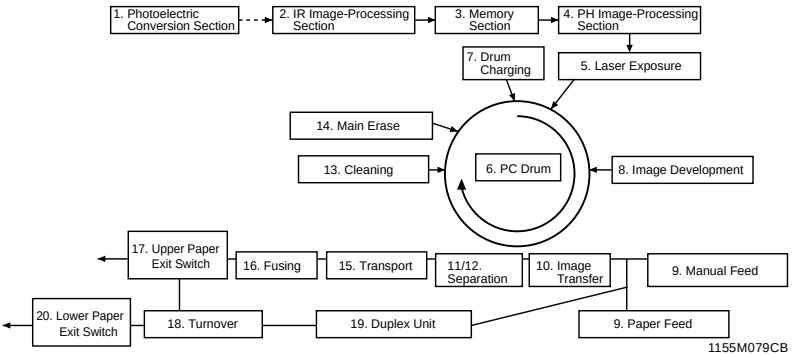


1. Mirror #3
2. Mirror #2
3. Mirror #1
4. Exposure Lamp (FL1)
5. Web Wind-up Roller
6. Web Coat/Transfer Roller
7. Web Roller
8. PH Unit
9. Original Detection Filter
10. Lens
11. Main Erase Lamp (LA1)
12. PC Drum Charger
13. PC Drum
14. Developing Unit
15. Transport Roller
16. Manual Feed Roller
17. Vertical Transport Roller #1
18. 1st Take-Up Roller Section
19. Vertical Transport Roller #2
20. 2nd Take-Up Roller Section
21. Vertical Transport Roller #3
22. 3rd Take-Up Roller Section
23. 3rd Drawer
24. Lower Paper Exit Roller
25. Duplex Unit Entry Roller
26. Turnover Transport Roller #2
27. Lower Paper Exit Switching Lever
28. Lower Paper Exit Roller
29. Duplex Unit Entry Roller
30. Turnover Transport Roller #2
31. Turnover Transport Roller #1
32. Lower Fusing Roller Separator Finger
33. Upper Paper Exit Switching Lever
34. Upper Paper Exit Roller
35. Fusing Transport Roller
36. Upper Fusing Roller Separator Finger
37. Upper Fusing Roller Heater Lamp (H1)
38. Upper Fusing Roller
39. Suction Unit
40. Cleaning Blade
41. Lower Fusing Roller
42. Lower Fusing Roller Heater Lamp (H2)
43. PC Drum Separator Finger
44. Duplex Unit Horizontal Transport Roller #2
45. Transfer/Separator Charger
46. Timing Roller
47. Duplex Roller #1
48. Duplex Roller #2
49. Duplex Unit Horizontal Transport Roller #1

-Jam Detection Sensors-

A. Manual Feed Paper Empty Sensor (PC6)
B. Transport Roller Sensor (PC1)
C. Paper Leading Edge Sensor (PC2)
D. Paper Exit Switch (S10)
E. Turnover Feed Entry Sensor (PC11)
F. Turnover/Exit Sensor (PC14)
G. Turnover Feed Jam Sensor (PC57)
H. Duplex Unit Horizontal Transport Entry Sensor (PC13)
I. Duplex Unit Horizontal Transport Jam Sensor (PC56)
J. Duplex Unit Horizontal Transport Sensor (PC12)
K. 1st Drawer Paper Take-Up Sensor (PC32)
L. Vertical Transport Sensor #1 (PC36)
M. 2nd Drawer Paper Take-Up Sensor (PC33)
N. Vertical Transport Sensor #2 (PC37)
O. 3rd Drawer Paper Take-Up Sensor (PC34)
P. Vertical Transport Sensor #3 (PC38)

2. COPYING PROCESS



1. Photoelectric Conversion Section

- The exposure lamp directs light onto the original. The light reflected from the original is directed and resized by the various mirrors and lenses so as to produce a reduced-size image on the CCD sensor.
- The CCD sensor converts the reduced image into an electrical signal. The signal is output to the IR image-processing section.

2. IR Image-Processing Section

- This section converts the electric signal from the photoelectric conversion section into an 8-bit digital image signal (A/D conversion), applies appropriate correction processing, and outputs the result to the memory section.

3. Memory Section

- This section compresses the data received from the IR Image-Processing Section. The section can store data for up to 200 A4-size sheets (assuming a B/W ratio of 6%). Stored data can then be expanded in various ways in accordance with selected functions.

4. PH Image-Processing Section

- This section applies correction processing to the digital signal output from the memory section, then converts the result (D/A conversion) into an electrical signal that controls the output level from the laser diode (LD).

5. Laser Exposure

- The laser beam emitted from the LD strikes the surface of the PC drum, creating a latent (electrostatic) image.

6. PC Drum

- The drum is an aluminum cylinder coated with photosensitive material. The action of the laser generates an electrostatic pattern (latent image) onto the drum surface.

7. Drum Charging

- A scorotron charger (with 2 comb electrodes) generates a negative DC charged layer on the surface of the drum.

8. Image Development

- Negatively charged toner from the developer mixing chamber adheres to the latent image on the drum surface, creating a visible image.
- AC/DC bias voltage is applied to the sleeve roller to prevent toner from adhering to the white background areas of the image.

9. Paper Feed

- This section feeds sheets from the appropriate feed source (feed drawer or manual-feed tray).

10. Image Transfer

- A single-wire transfer corona generates a positive DC corona discharge on the back side of the sheet being fed. This causes the visible image on the PC drum to transfer onto the front side of the paper.

11. Separation (1)

- A single-wire separator corona generates AC and negative DC corona discharges at the backside of the sheet so that the sheet can be easily separated from the drum.

12. Separation (2)

- The sheet is removed from the drum by the PC-Drum Separation Fingers.

13. Cleaning

- The cleaning blade removes the toner remaining on the drum.

14. Main Erase

- The drum is exposed to light to remove any residual surface charge.

15. Transport

- The suction belt moves the sheet to the fusing section.

16. Fusing

- Heat and pressure supplied by the upper and lower fusing rollers cause the toner to fuse to the sheet.

17. Upper Paper Exit Switch

- The switching mechanism determines whether the sheet is ejected to the copy tray or transported to the turnover section.

18. Turnover

- This section flips the sheet and directs it onward. The sheet is then either ejected (if a one-side copy) or else transported to the duplex unit (if the sheet must be passed through again for duplex copying).

19. Duplex Unit

- Stores (following first-side copy) a fixed number of sheets that have been ejected. Then refeeds the sheets for copying onto the other side.

20. Lower Paper Exit Switch

- This switch operates only during folded sorting mode. The solenoid comes ON, causing paper to eject with no turnover.

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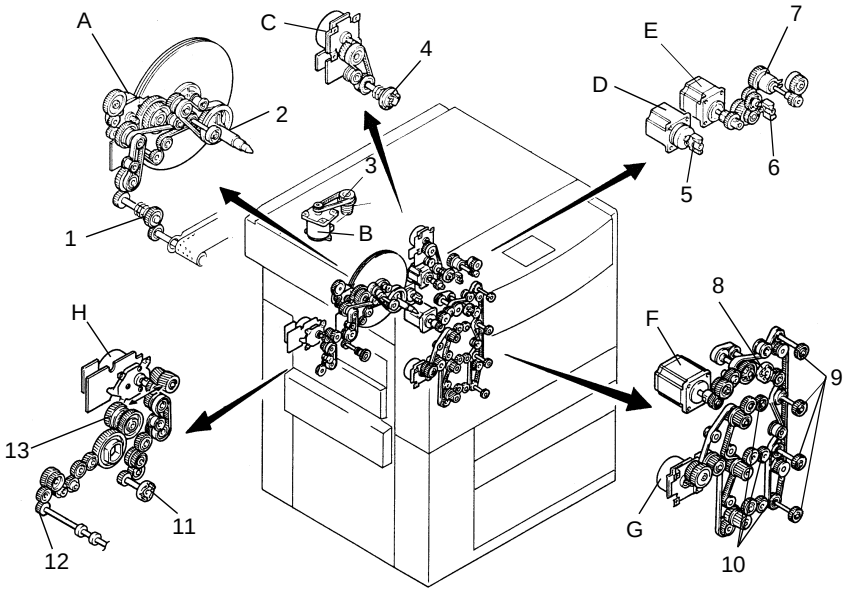
3. DRIVE SYSTEM



1155M052AA

A. PC Drum Drive Motor (M2) : Drives the PC Drum and the Suction Belt.
   1. Suction Belt Drive Gears
   2. PC Drum Drive Docking Shaft and 2nd and 3rd Mirror Carriage.

B. Scanner Motor (M31) : Drives the scanner
   3. Scanner Drive Pulleys

C. Developing Unit Drive Motor (M31) : Drives the Developing Unit.
   4. Developing Unit Drive Coupling Gears

D. Synchronizing Motor (M5) : Drives the Synchronizing Rollers.
   5. Synchronizing Rollers Coupling Gears

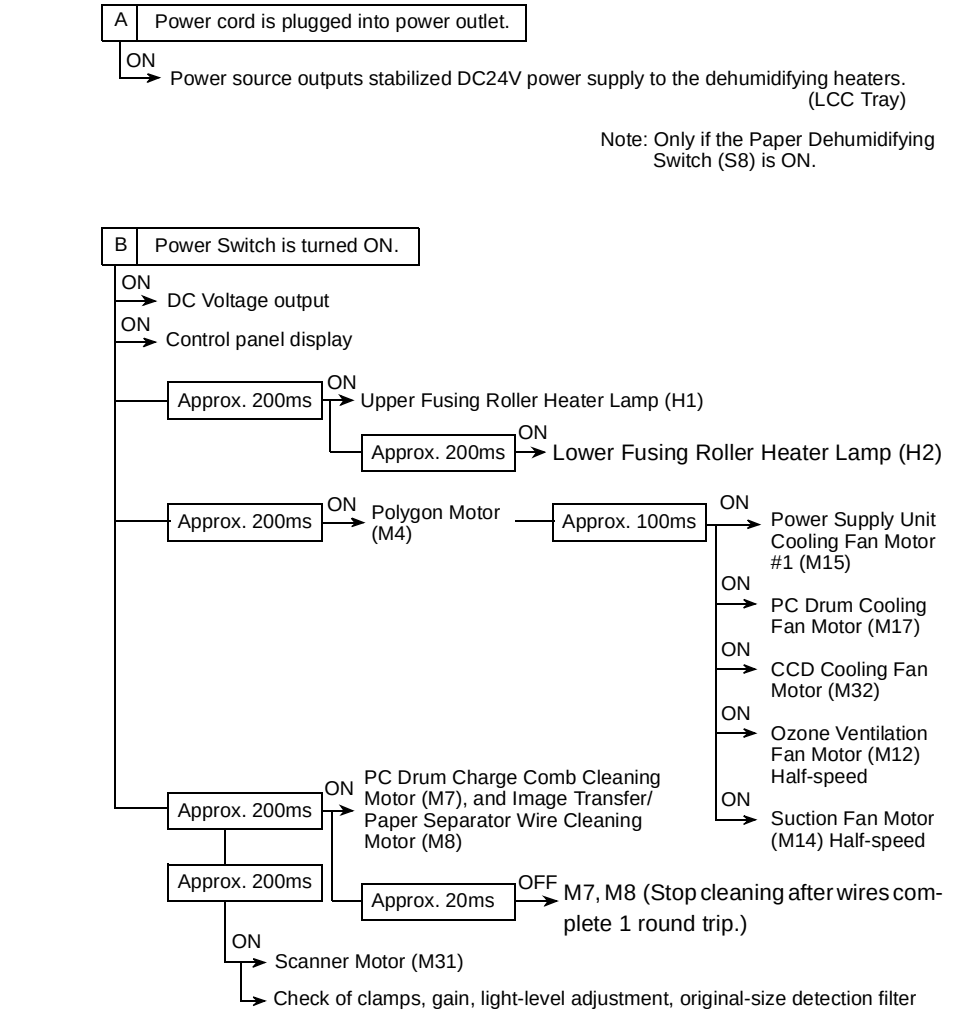
E. Transport Motor (M23) : Drives the Transport Roller and Manual-Feed Roller.
   6. Transport Roller Coupling Gears
   7. Manual Feed Paper Take-Up Clutch (CL1)

F. Vertical Transport Motor (M22) : Drives the Vertical Transport Rollers and the Duplex Unit Horizontal Transport Rollers #3/4.
   8. Duplex Unit Horizontal Transport Roller Coupling Gears 2
   9. Vertical Transport Roller Drive Gears

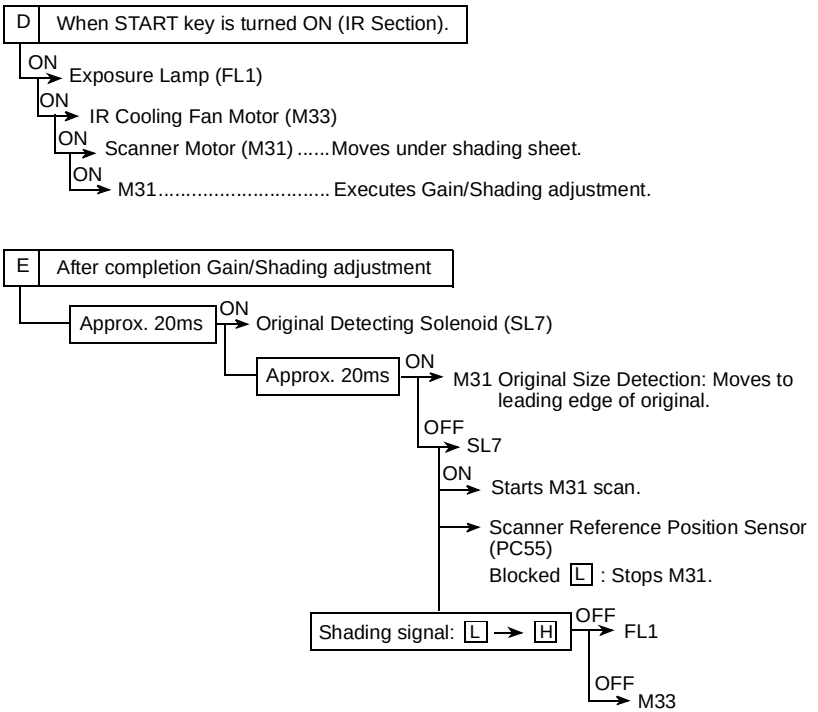
G. Paper Take-Up Motor (M21) : Drives the Take-Up Rollers.
   10. Take-Up Roller Drive Gears

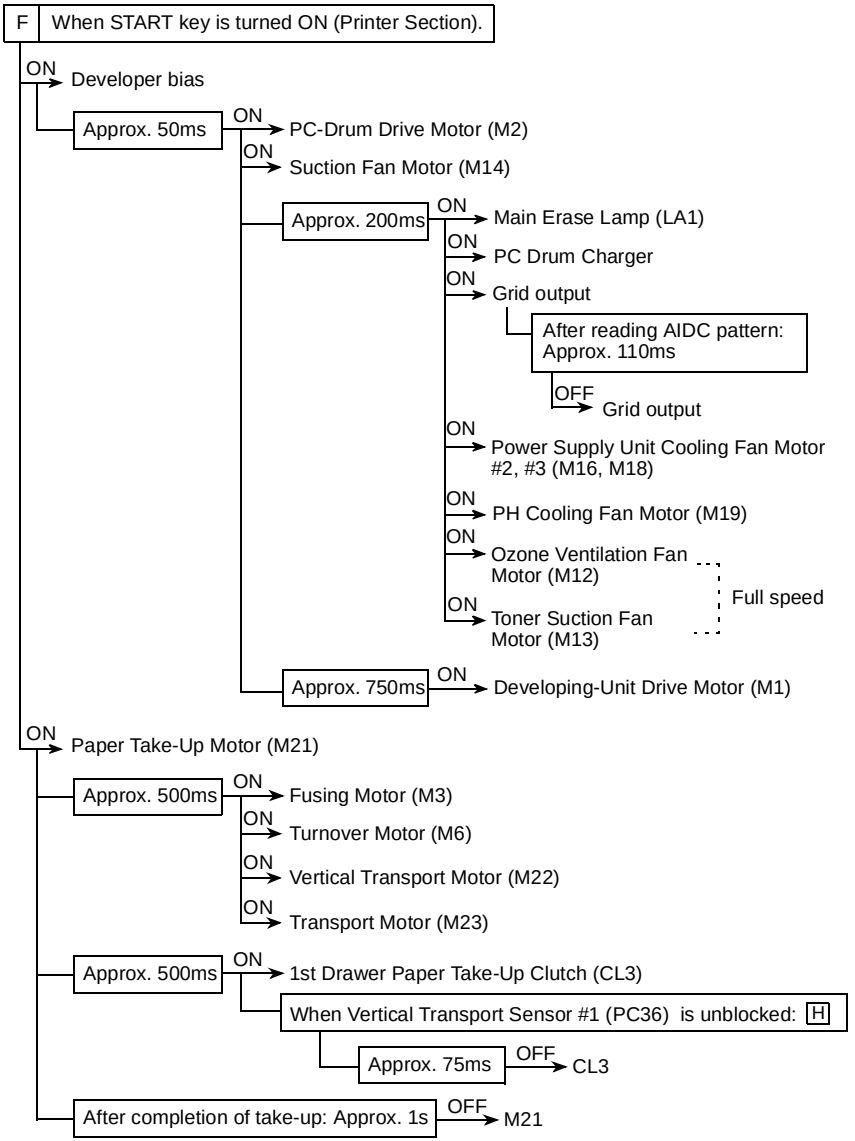
H: Fusing Motor (M3) : Drives the Fusing Unit, the Upper Paper-Exit Roller, and the Duplex Unit Horizontal Transport Rollers #1/2.
   11. Duplex Unit Horizontal Transport Roller Coupling Gears 1
   12. Upper Paper Exit Roller Drive Gears
   13. Fusing Unit Drive Gears

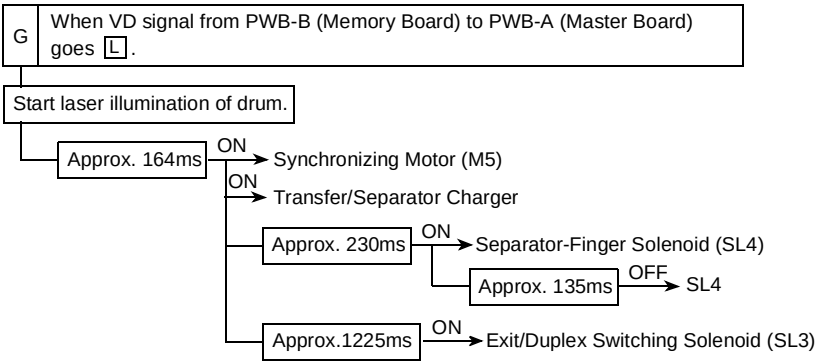
4. OPERATING SEQUENCE

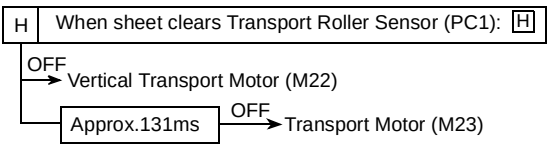

A
Power cord is plugged into power outlet.
ON
Power source outputs stabilized DC24V power supply to the dehumidifying heaters. (LCC Tray)
Note: Only if the Paper Dehumidifying Switch (S8) is ON.
B
Power Switch is turned ON.
ON
DC Voltage output
ON
Control panel display
Approx. 200ms
ON
Upper Fusing Roller Heater Lamp (H1)
Approx. 200ms
ON
Lower Fusing Roller Heater Lamp (H2)
Approx. 200ms
ON
Polygon Motor (M4)
Approx. 100ms
ON
Power Supply Unit Cooling Fan Motor #1 (M15)
ON
PC Drum Cooling Fan Motor (M17)
ON
CCD Cooling Fan Motor (M32)
ON
Ozone Ventilation Fan Motor (M12) Half-speed
ON
Suction Fan Motor (M14) Half-speed
Approx. 200ms
ON
PC Drum Charge Comb Cleaning Motor (M7), and Image Transfer/ Paper Separator Wire Cleaning Motor (M8)
Approx. 200ms
Approx. 20ms
OFF
M7, M8 (Stop cleaning after wires complete 1 round trip.)
ON
Scanner Motor (M31)
Check of clamps, gain, light-level adjustment, original-size detection filter
C
When Upper Fusing Roller Thermistor (TH1) reaches the preset temperature.
Note: The temperature setting can be changed by Service Choice function. (180°C/190°C/200°C)
OFF
Upper Fusing Roller Heater Lamp (H1)
Lower Fusing Roller Heater Lamp (H2): 140°C
Cycle ON/OFF to adjust temperature.

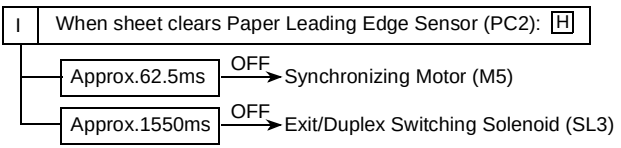
=The following shows the sequence for making a single copy onto A4C paper, feeding from the 1st Drawer, at 100% magnification.=

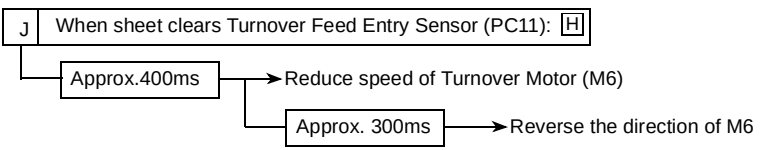



F
When START key is turned ON (Printer Section).
ON
Developer bias
Approx. 50ms
ON
PC-Drum Drive Motor (M2)
ON
Suction Fan Motor (M14)
Approx. 200ms
ON
Main Erase Lamp (LA1)
ON
PC Drum Charger
ON
Grid output
After reading AIDC pattern: Approx. 110ms
OFF
Grid output
ON
Power Supply Unit Cooling Fan Motor #2, #3 (M16, M18)
ON
PH Cooling Fan Motor (M19)
ON
Ozone Ventilation Fan Motor (M12)
ON
Toner Suction Fan Motor (M13)
Full speed
Approx. 750ms
ON
Developing-Unit Drive Motor (M1)
ON
Paper Take-Up Motor (M21)
Approx. 500ms
ON
Fusing Motor (M3)
ON
Turnover Motor (M6)
ON
Vertical Transport Motor (M22)
ON
Transport Motor (M23)
Approx. 500ms
ON
1st Drawer Paper Take-Up Clutch (CL3)
When Vertical Transport Sensor #1 (PC36) is unblocked: H
Approx. 75ms
OFF
CL3
After completion of take-up: Approx. 1s
OFF
M21

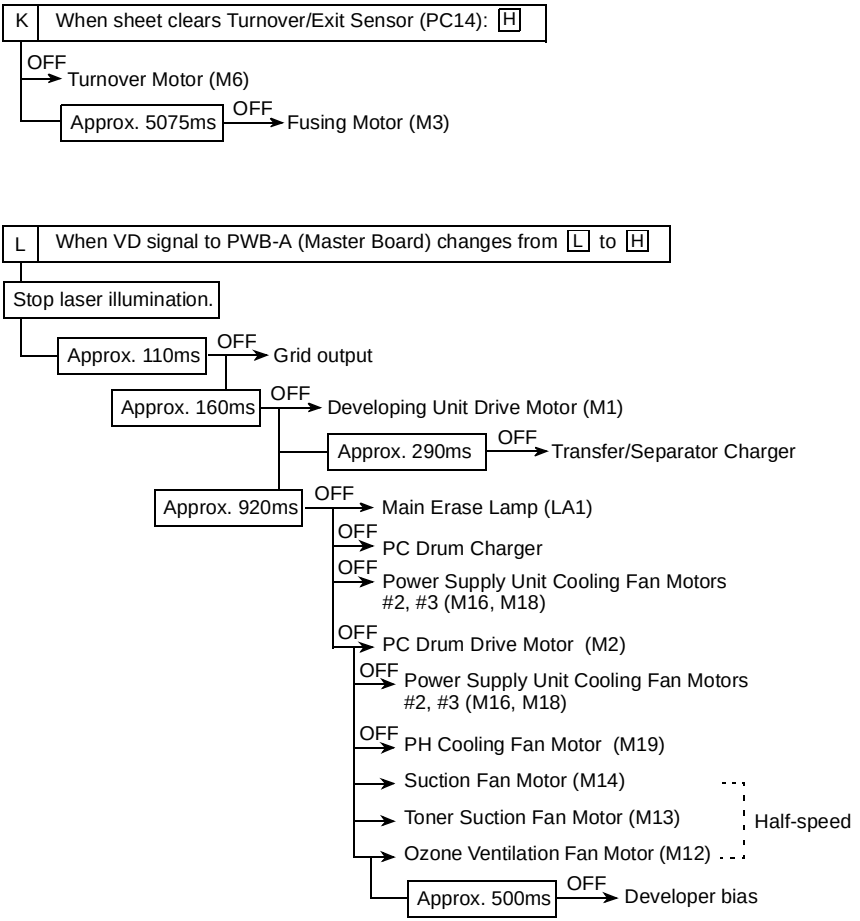

G
When VD signal from PWB-B (Memory Board) to PWB-A (Master Board) goes L.
Start laser illumination of drum.
Approx. 164ms
ON
Synchronizing Motor (M5)
ON
Transfer/Separator Charger
Approx. 230ms
ON
Separator-Finger Solenoid (SL4)
Approx. 135ms
OFF
SL4
Approx.1225ms
ON
Exit/Duplex Switching Solenoid (SL3)


H
When sheet clears Transport Roller Sensor (PC1): H
OFF
Vertical Transport Motor (M22)
Approx.131ms
OFF
Transport Motor (M23)


I
When sheet clears Paper Leading Edge Sensor (PC2): H
Approx.62.5ms
OFF
Synchronizing Motor (M5)
Approx.1550ms
OFF
Exit/Duplex Switching Solenoid (SL3)


J
When sheet clears Turnover Feed Entry Sensor (PC11): H
Approx.400ms
Reduce speed of Turnover Motor (M6)
Approx. 300ms
Reverse the direction of M6

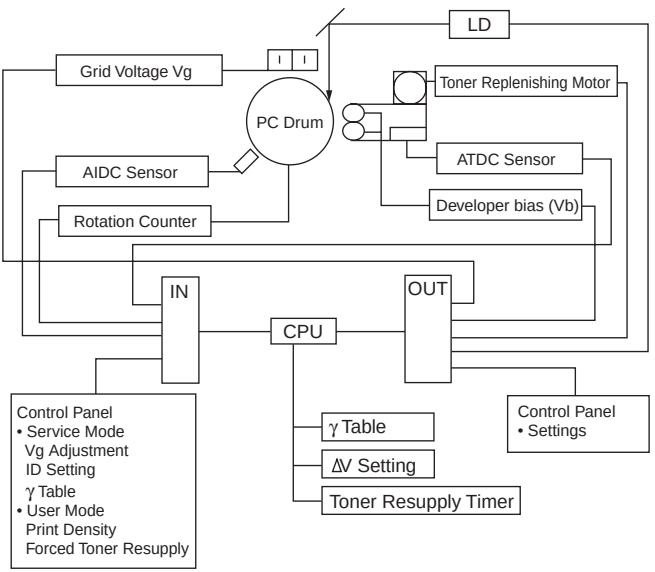
5. IMAGE STABILIZING SYSTEM



● The following table outlines the controls measures taken to maintain stable imaging.

Item	Purpose	Method
Initial Setup	First correct for AIDC sensor disparity and contamination. Then use ΔV control to set initial values for grid voltage (Vg) and developer bias (Vb).	Set initial values for grid voltage (Vg) and developer bias (Vb).
Short-Term Correction	Correct for ID drop caused by change in drum sensitivity.	Perform ΔV control after every 100 copies.
Long-Term Correction	Correct for drop in surface potential (surface fogging) caused by drum deterioration.	Correct Vg based on cumulative hours of drum rotation.
Morning Correction (first run each morning)	Correct for ID drop caused by low drum sensitivity when copier is first power switch is turned ON (before copier is fully warmed up).	AIDC sensor contamination, use ΔV control to correct the grid voltage (Vg) and developer bias (Vb).
Correction After Prolonged Non-Use	Correct for ID change caused by change in drum sensitivity due to non-usage for at least two hours in the standby state.	When START key is pressed, use ΔV control to correct Vg and Vb before making the copy.
T/C Correction	Maintain the developing unit's T/C ratio at a constant level.	Use ATDC to control the toner resupply

● The following is a block diagram of the image stabilizing system.



1155M080CA

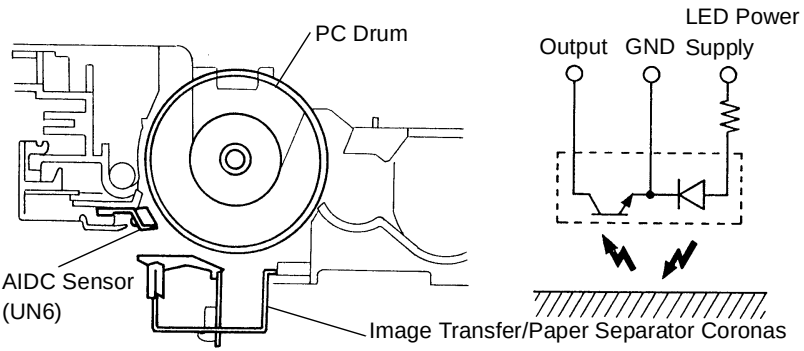
1155SBM0501A

5-1. AIDC Sensor

To provide image stabilization control, this copier has AIDC Sensor fitted to the Cleaning Unit of the Imaging Unit. The sensor is used to detect the toner density and background level on the PC Drum.

Operation

1: The LED projects approx. 950-nm infrared light onto the surface of the PC Drum.
2: The phototransistor detects the amount of light reflected back.
3: The phototransistor outputs a voltage corresponding to the intensity of the light reflected back.



1149M005AA

Toner Density on PC Drum	Light reflected	Output Voltage
High	Small	High
Low	Large	Low

5-2. Control Methods of the Image Stabilizing System

① AIDC Sensor Control ② Grid Voltage Control (Vg)

● Controls are implemented as follows.

①-1. Adjustment of AIDC Sensor Disparity (coarse adjustment)

This adjustment is required when normal correction of AIDC contamination and disparity (installation disparity, circuitry error, drum deterioration, etc.) fails to bring operation to within the appropriate range. To make the adjustment, the drum surface is erased and an AIDC pattern is generated on it. A 4-bit analog switch (charge-resistance switch) is then set so as to bring the voltage determined by the combination of the switch setting and the AIDC sensor output to approximately 1 volt.

①-2. Adjustment for AIDC Sensor Contamination (fine adjustment)

Contamination of the AIDC sensor by toner or other material will cause a drop in the sensor output voltage. This must be corrected for if the AIDC sensor is to continue providing reliable reference values. To make the adjustment, the drum surface is erased and an AIDC pattern is generated on it. LED current is then adjusted to bring the AIDC sensor output voltage to 1V.

CONTROLLED PART	CONTROL SIGNAL	WIRING DIAGRAM
AIDC Sensor	PJ10A-1B	C-4

①-3. ΔV Control

Drum deterioration and environmental factors may lead to a drop in drum sensitivity and drum surface potential, resulting in ID loss. To correct for this, grid voltage (Vg) and bias voltage (Vb) are adjusted to bring the AIDC sensor output voltage into the range between 4.27V (lighter) to 4.29V (darker).

② Grid Voltage Control (Vg)

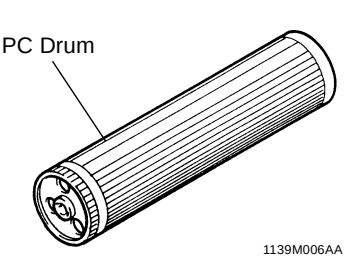
This control corrects for a loss in drum surface potential caused by drum deterioration (loss of surface material). Correction is made by increasing the Vg by 1 step after 70 hours of drum rotation.

CONTROL	CONTROL VALUE	INITIAL VALUE
Grid voltage	–365V to –905V	–653V

1155SBM0600A

6. PC DRUM

- The copier uses an OPC (organic photocondutor) drum.
  * The drum consists of an aluminum base coated with a carrier generation layer and a charge holding layer.
- The drum provides good spectral sensitivity in the near infrared range.
  (Usage Precautions)
  Protracted exposure to extraneous light can cause the drum surface to suffer light fatigue, resulting in a loss of optical sensitivity. If the drum is removed from the unit, it should be wrapped in a soft clean cloth or other protective covering to prevent lengthy exposure to ambient light.



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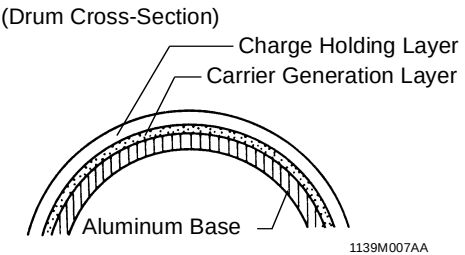
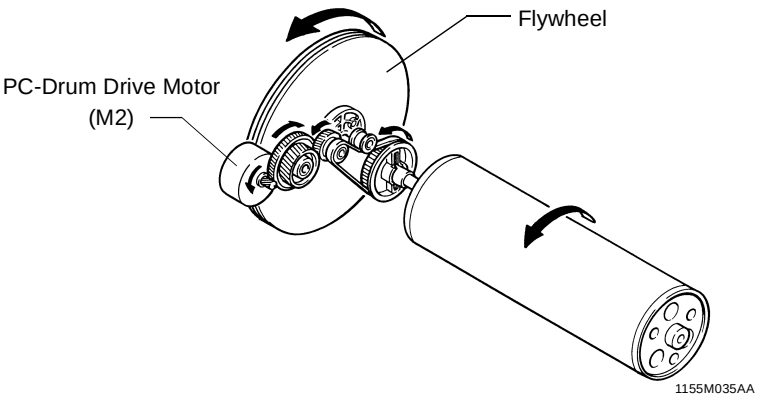


1139M007AA

1155SBM0601A

6-1. Drum Drive Mechanism

- The drum is driven by the PC Drum Drive Motor. A flywheel mounted to the drum shaft helps to maintain smooth rotation.



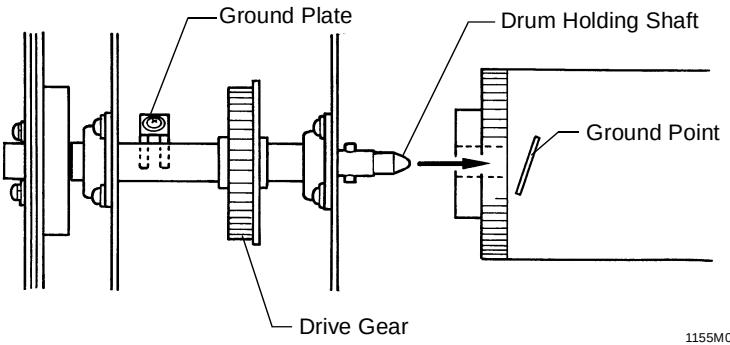
1155M035AA

CONTROLLED PART	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M2	PJ7A-2A	L	H	E-4

1155SBM0602A

6-2. Grounding of the PC Drum

The PC Drum ground point is inside the rear end. When the PC Unit is slid into the copier, the Drum Holding Shaft contacts the ground point. This provides for assured grounding of the PC Drum through the Ground Plate in the rear to the frame of the copier.



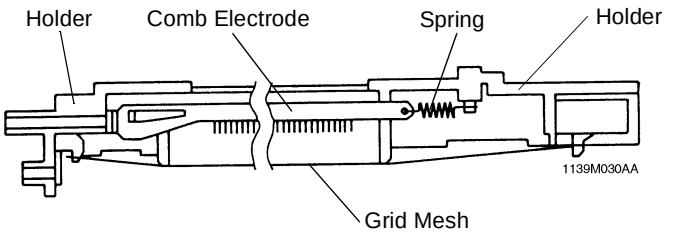
1155M034AA

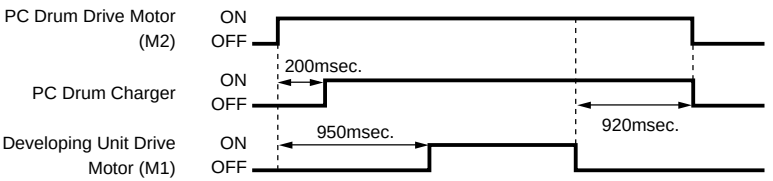
7. DRUM CHARGING

A scorotron charger system generates a negative DC corona discharge onto the drum surface. A grid mesh provides uniform charging.

The grid voltage (VG) applied to the grid mesh is controlled by the constant voltage circuitry within the Drum Charge High Voltage Unit (HV1).

In order to restrict ozone production, the copier utilizes two comb electrode chargers to generate the charge. Whereas wire type chargers produce circular coronas that can generate significant ozone on all sides, the comb electrode charger concentrates the discharge onto the grid mesh, thereby reducing ozone generation.





1155T21MCB

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
HV1 PC Drum Charger	PJ9A-2A	L	H	F~G-8~9

INITIAL VALUE -614V	CONTROL SIGNAL	WIRING DIAGRAM
Grid Voltage (VG)	PJ9A-12A	F-8
NOTE Will vary in accordance with image stabilizing control.		

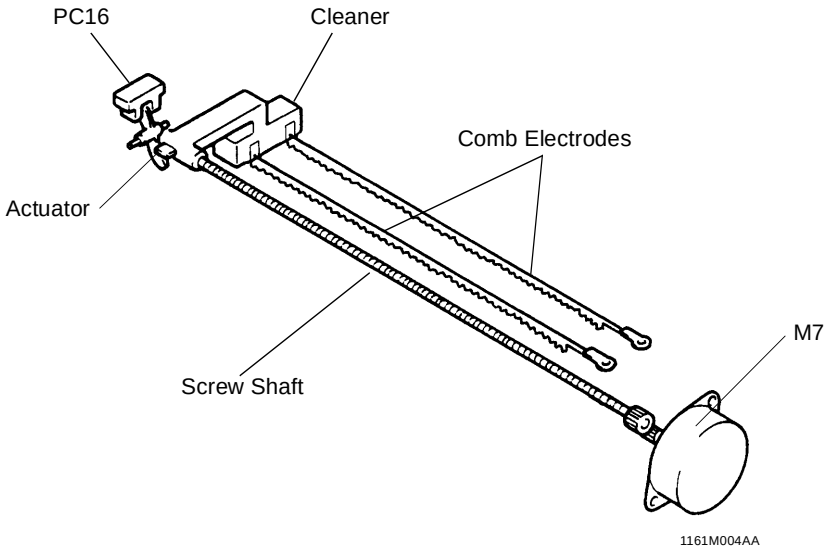
1155SBM0701A

7-1. PC Drum Charge Corona Comb Electrode Cleaning Mechanism

The two PC Drum Charge Corona Comb Electrodes are provided with a cleaning mechanism that removes from the electrodes any toner and dust particles which would otherwise cause uneven charging, white streaks on copies, and charge leak.

<Mechanism>

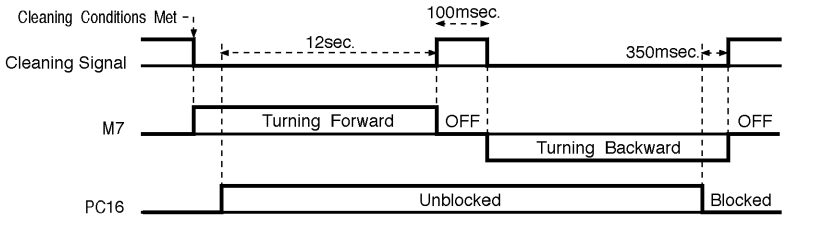
- When PC Drum Charge Comb Cleaning Motor M7 is energized, its drive is transmitted to the Screw Shaft. This in turn moves the Cleaner mounted on the Screw Shaft.
- Drum Comb Cleaner Home Position Sensor PC16 detects the Cleaner at its home position (which is the reference position for its cleaning motion). The Cleaner makes one round trip per each cleaning cycle to clean the electrodes.



<Control>

- The PC Drum Charge corona wires are automatically cleaned under the following conditions. The cleaning function is, however, disabled if the “Charge Wire Cleaning” function of “System Input” available from the Tech. Rep. mode has been set to “Off”.

(1) A period of 500 msec. has elapsed after Power Switch S1 has been turned ON.
(2) The number of copies made exceeds 10K after S1 has been turned ON and 10 minutes elapse after the last copy cycle has been completed.
(3) A PC Drum Charge Corona malfunction, which has been detected, is reset.
(4) A misfeed/malfunction, which has been detected, is reset with a sheet of paper remaining at the area near the Image Transfer/Paper Separator Corona.



1155T22MCA

	CONTROL SIGNAL	FORWARD	BACKWARD	WIRING DIAGRAM
M7	PJ10A-6A	Pulse Output		B-4

	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC16	PJ9A-14A	H	L	G-4

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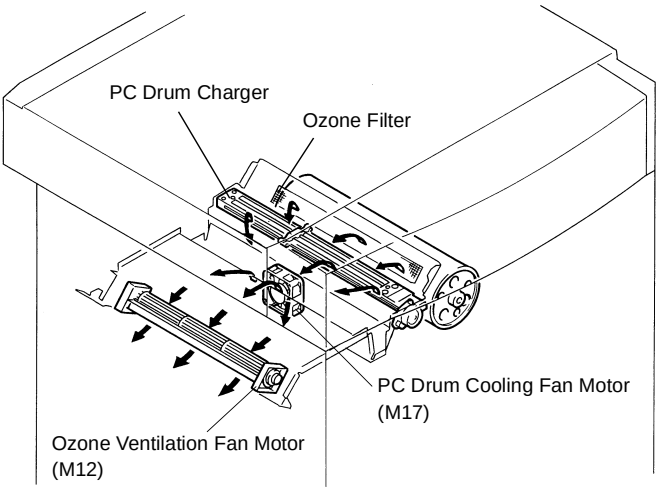
7-2. Ozone Filter

● Ozone produced by the PC Drum Charge Corona is absorbed by the Ozone Filter as the air is drawn out of the copier by Ozone Ventilation Fan Motor.

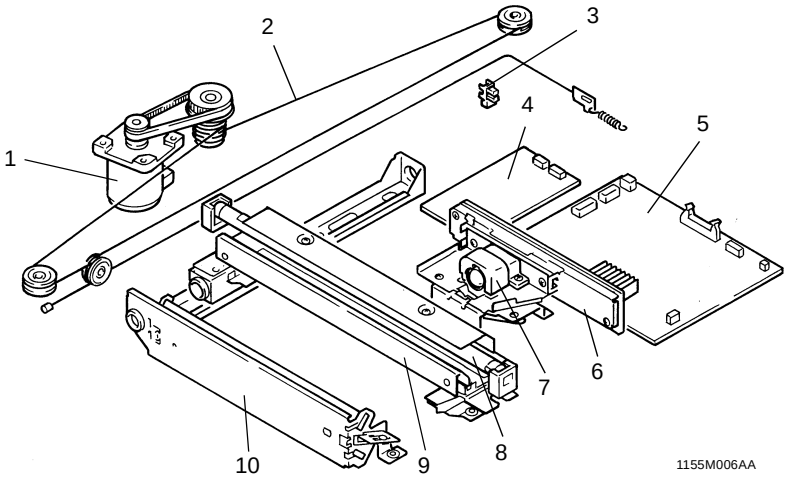


1155M005AA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M12	PJ10A-7B	L	H	B-10
M17	PJ10A-6B	L	H	A-10

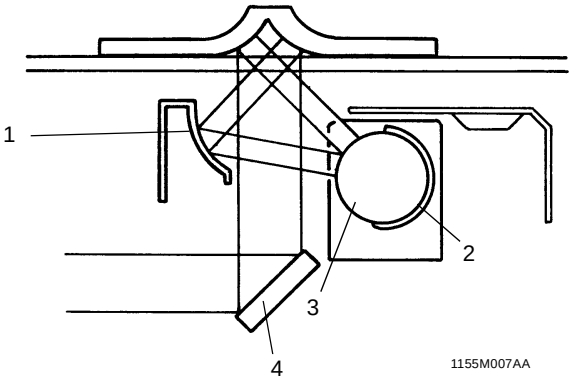
8. IR SECTION

- Light reflected from the original during scanner movement passes through three mirrors and one lens to form a reduced image on the CCD sensor. The sensor converts the light pattern (image data) into an electrical image signal.
- The electrical image signal is then converted into a digital image signal. The digital image signal passes through correction processing, and the result is output to the MSC board.



1. Scanner Motor (M31)
2. Scanner Drive Cable
3. Scanner Reference Position Sensor (PC55)
4. Exposure Lamp Inverter Board (UN10)
5. Digital Image Processing Board (PWB-IB)
6. CCD Analog Image Processing Board (PWB-IA)
7. Lens
8. Exposure Lamp (FL1)
9. Scanner
10. 2nd/3rd Mirror Carrige

8-1. Exposure Section: Structure and Operation



1. Auxiliary Reflector
   When books or other bound volumes are copied, the paper in the area near the binding generally fails to come flush against the glass, so that the copy for these areas is generally too dark. The Auxiliary Reflector reduces the problem by reflecting light from the Exposure Lamp onto the original.

2. Exposure Lamp Heater
   This heater warms up the exposure lamp, reducing the system's warmup time.

3. Exposure Lamp
   Fluorescent lamp used to illuminate the original.

4. Mirror #1
   Directs the reflected light from the original over to Mirror #2.

1155SBM0802A

8-2. Exposure Lamp ON/OFF Control

- ON/OFF of the Exposure Lamp is controlled by the Exposure Lamp remote signal from the Digital Image Processing Board.
- ON/OFF timing varies according to whether the operation is generated by the Power Switch or by the Start key, as follows.

=Operation when Power Switch is switched ON=

The timing operates in conjunction with automatic adjustment of clamp level and gain, as described below.

- Automatic adjustment of clamp level: Sets the black level when scanning an image.
- Automatic adjustment of gain: Sets the maximum white level.

These adjustments correct for fluctuations in output voltage caused by environmental changes and by performance disparities among components.

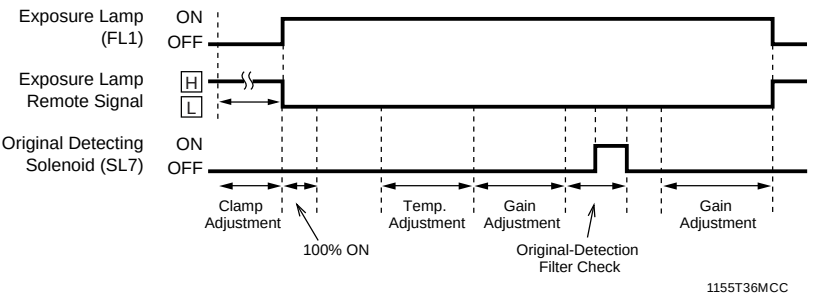
<Exposure Lamp ON Timing>

- Power Switch turns ON, the Exposure Lamp remote signal goes [L] , causing the Exposure Lamp to come ON.
- The Exposure Lamp intensity remains at 100% adjustment during that the Exposure Lamp is ON, and is then readjusted.

<Exposure Lamp OFF Timing>

- The Exposure Lamp remote signal goes [H] (Exposure Lamp goes OFF) the completion of the original detection filter check.

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
Exposure Lamp Remote Signal	PJ9IB-12A	[L]	[H]	C-18



=Operation when START key is pressed (ON)=

<Exposure Lamp ON Timing>

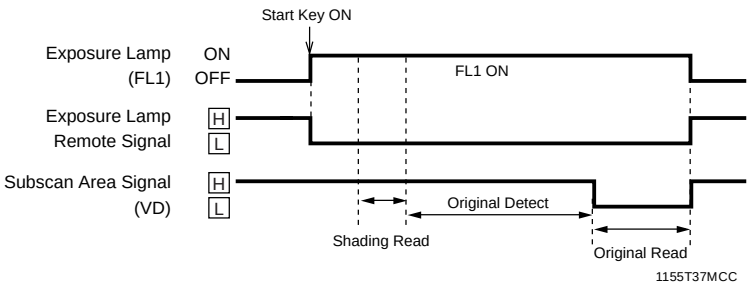
- The Exposure Lamp remote signal goes [L] (Exposure Lamp comes ON) as soon as the Start key is pressed. To help ensure stable illumination, data scanning (including sequential-data scanning) does not begin until the lamp has been ON.
- The lamp remains on continously during EDH-1 copy operation. (This measure is taken to help prolong the lamp's life.)

<Exposure Lamp OFF Timing>

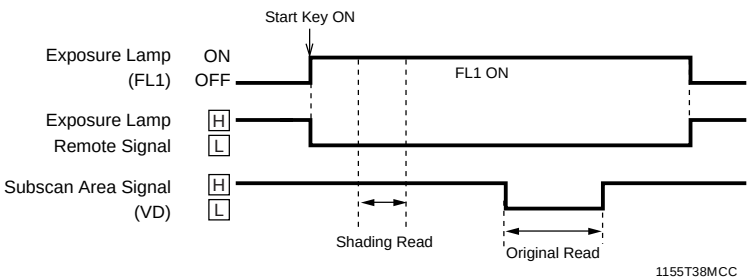
- Manual placement mode scan, the Exposure Lamp remote signal goes [H] (causing the Exposure Lamp to go OFF) when the subscan-area signal from the Digital Image Processing Board changes from [L] to [H].
- Under EDH-1 single-feed mode, the Exposure Lamp goes off the Subscan-Area signal changes from [L] to [H].
- Under book mode, the Exposure Lamp goes off the Subscan-Area signal changes from [L] to [H].

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
Subscan Area Signal (VD)	PJ3B-27	[L]	[H]	H-18

-Manual placement of original-



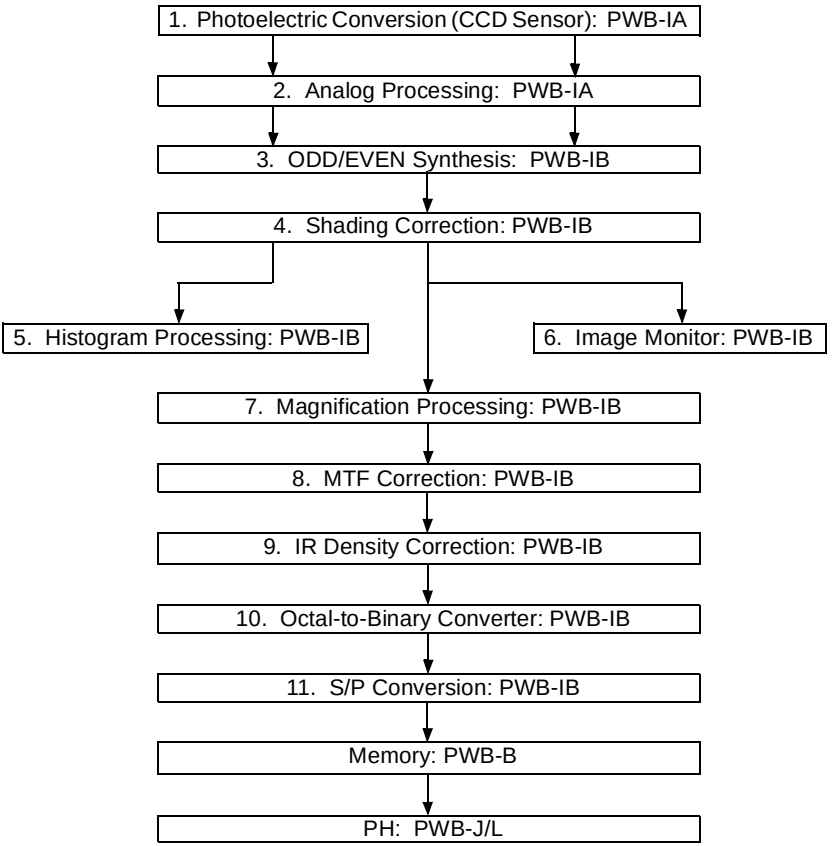
-EDH-1 (Single Feed Mode)-



1155SBM0803A

8-3. IR Image Processing System

- The IR image processing system is composed of the following blocks. These blocks implement various types of corrective processing.



1. **Photoelectric Conversion (CCD Sensor): PWB-IA**
   - Light from the Exposure Lamp (FL1) reflects off the original, passes through mirrors and one lens, and reaches the CCD sensor. The CCD sensor converts the optical data into analog electrical signals.

2. **Analog Processing: PWB-IA**
   - This block eliminates noise from the (ODD and EVEN) analog signals output by the CCD sensor, then converts the result into (ODD and EVEN) 8-bit digital image signals (A/D conversion).

3. **ODD/EVEN Synthesis: PWB-IB**
   - This block Synthesizes the ODD and EVEN signals received from the preceding block into a single image-data signal.

4. **Shading Correction: PWB-IB**
   - Corrects shading error introduced by factors such as sensitivity differentials among CCD sensor pixels, uneven FL1 light distribution, and uneven lens shading. Following this correction, the resulting data is converted by the Reflectivity/Density Converter into image density data that is in linear proportional to the density of the original image.

5. **Histogram Processing: PWB-IB**
   - Generates a histogram of the image data, for use during EE/gain adjustment.

6. **Image Monitor: PWB-IB**
   - Monitors the image data. Used for detecting the size of the original.

7. **Magnification Processing: PWB-IB**
   - Adjusts the image in accordance with the feature setting (Enlarge/Reduce) made at the control panel.

8. **MTF Correction: PWB-IB**
   - Reduces the image noise contained in the image density data, smooths the image, adds emphasis to borders of characters and lines, and adds sharpness.

9. **IR Density Correction: PWB-IB**
   - Corrects the gradation of the image density data, in accordance with the imaging mode and copy density set at the control panel, so as to produce optimal density and image quality.

10. **Octal-to-Binary Converter: PWB-IB**
    - Converts image density data from 8-bit data to 1-bit data, using an error-dispersing binarization method.

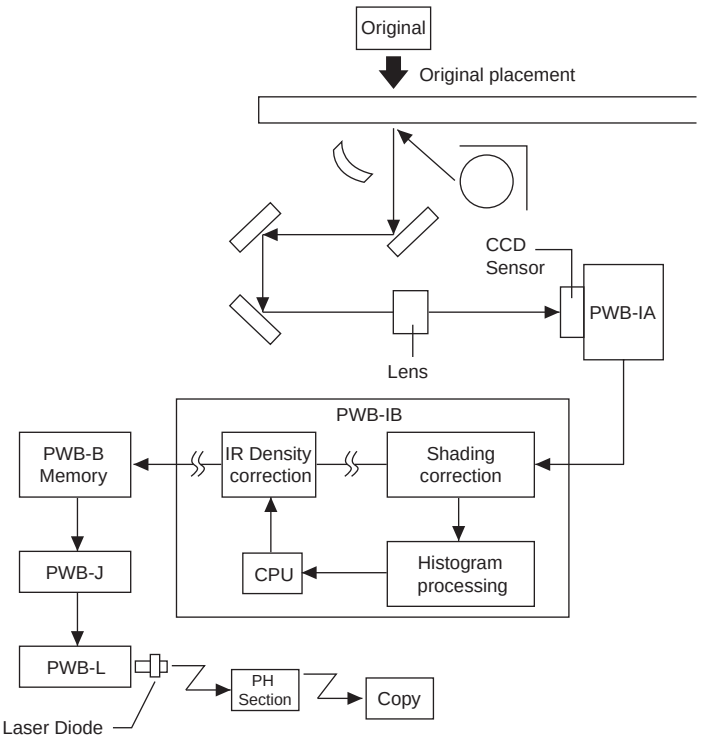
11. **S/P Conversion: PWB-IB**
    - Converts the binarized image-density data into an 8-bit parallel signal, and transmits this signal to the memory section.

1155SBM0804A

8-4. Image Density Control

1) Auto Density (AE) Control

- Auto Density Control (AE Control) varies the background removal threshold in accordance with the original type (newspaper, photograph, etc.). This helps ensure that only the fogging component in the low-density areas is removed, while retaining the image density of the characters and other high-density areas of the image.
- Unlike correction by analog PPC, the AE control method holds the intensity of the exposure lamp constant and determines the characteristics of the original by means of sample data obtained through realtime scanning. The IR Density Correction Processing section then removes the background components that are below the threshold.



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<Setting of the Density Level>

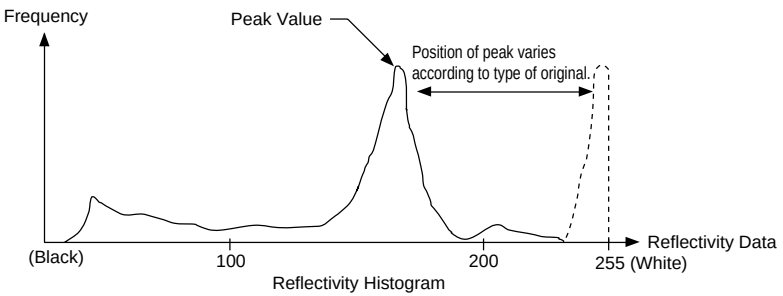
- The user can select from three levels (Light, Normal, or Dark) by User Choice setting.
- Automatic density control (AE control) is effective only if the copier is operating in Character mode. If the copier is in Photo mode, then only manual density control is available.

<Realtime Scanning>

- Realtime scanning is carried out by scanning the image data while copying is in progress. (This is the same type of scanning used with analog PPCs).
- The data samples are plotted into a reflectivity histogram. The histogram is used to determine the type of the original, and the background removal threshold is calculated accordingly.

<Reflectivity Histogram>

- The CPU of the Auto Density (AE) Control Section generates the histogram (image data reflectivity distribution) from the data samples obtained by realtime scanning.
- The reflectivity distribution varies according to the type of original being copied. The CPU recognizes five different original types, based on the position of the peak (*1) within the histogram, and calculates the background removal threshold accordingly. The five recognized types are: two-tone B&W; newspaper; magazine; map; and photograph.



*1: The peak value represents the density of the original's background. For a two-tone B&W image (such as a word-processor document), where the background is white, the peak would appear all the way to the right, as shown by the dotted line in the above illustration. For a newspaper, which is characterized by a somewhat darker background, the peak would appear at about the position shown by the solid line in the above chart.

- Photographs, unlike the other original types, generally do not have a clearly defined peak, since the reflectivity distribution tends to vary irregularly across the entire length of the histrogram. The CPU is therefore unable to calculate a reliable background removal threshold. To prevent damage to the image caused by inappropriate background removal, therefore, the copier sets the threshold to the manual density mode's center setting (setting "5"). [Note: Copying in PHOTO mode may be advised for documents that contain many photographic images.]

- The control flow for auto density (AE) control is shown below.

Start Key ON

↓

<Realtime Scanning>

The scanner starts normal scanning of the document. (The copy cycle starts.)

↓

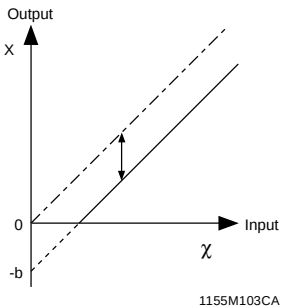
The image data read by the CCD sensor is transmitted (in parallel) from the Shading Correction block to the Histogram block, where the data values are sampled, and the samples are counted in order to generated the reflectivity histogram.

↓

The CPU determines the type of the original based on the histogram, and sets the removal threshold accordingly.

↓

The CPU transmits the threshold value to the IR Density Correction block. This block then corrects the image density of incoming data in accordance with the relation shown below.



$X=a\chi-b$

X: Image density value after density correction
a: 1
χ: Image density value before density correction
-b: Threshold (intercept)

↓

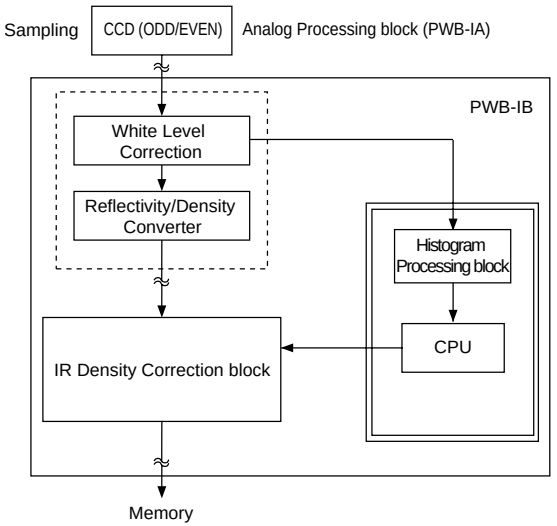
To ① on next page.

①

The gradation curve of the density-corrected data is adjusted in accordance with the Image Quality mode so as to enhance the reproduction of the high-density areas.

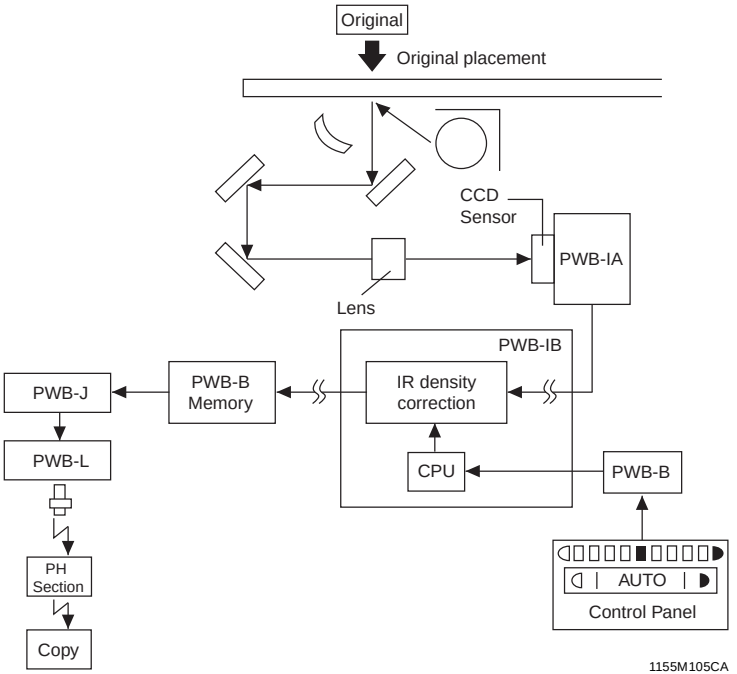
The above processing helps retain density detail within characters and other high-density areas, while removing the fogging component from the low-density areas.

- The following block diagram illustrates the operation of auto-density (AE) control.



2) Manual Density Control

- If the copier is set to manual density mode, the user can set copy density to any of nine settings (or “steps”) at the control panel (touch panel).
- Based on the user’s setting, the CPU of the PWB-IB transmits a predetermined background removal threshold value to the IR Density Correction block, which then implements density correction accordingly.



- The control flow during manual density mode is described below.

The user selects manual density mode at the touch panel, and then sets the density level (“step”).

↓

The step setting is transmitted through the Memory board to the Digital Image Processing Board.

↓

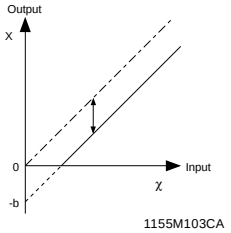
The CPU on the Digital Image Processing board finds the background removal threshold value that corresponds to the step setting.

↓

To ① on next page.

①

The threshold value is transmitted from the PWB-IB to the IR Density Correction block. This block then corrects the image density of incoming data in accordance with the relation shown below.



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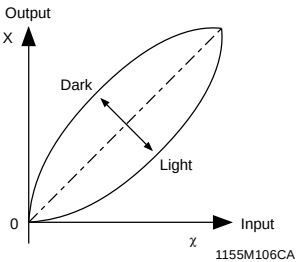
$$X=a\chi-b$$

X: Image density value after density correction
a: 1
χ: Image density value before density correction
-b: Threshold (intercept)

For all quality modes other than “Photo,” the gradation curve of the density-corrected data is adjusted in accordance with the Image Quality mode so as to enhance the reproduction of the high-density areas.
If the Image Quality mode is set to “Photo,” however, the gradation curve is designed to promote image smoothness, even density, and low noise. In this case, the curve is adjusted in accordance with the manual density setting, as illustrated below.



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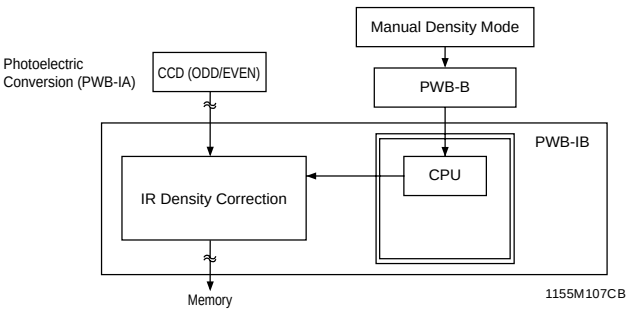
The above processing enables the user to select copy density effectively for any of the image quality modes.

- The following block diagram illustrates the manual density control flow.



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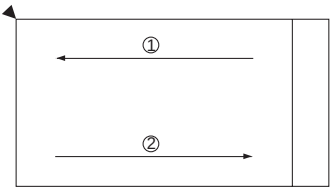
8-5. Detection of Original

1) Detection

- The detection system detects the original's size, position, and skew.
- Detection operation is illustrated below.

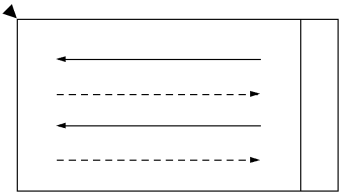
<Metric Area>



1155M059AA

①: Detection of Original
②: Scanning of Original

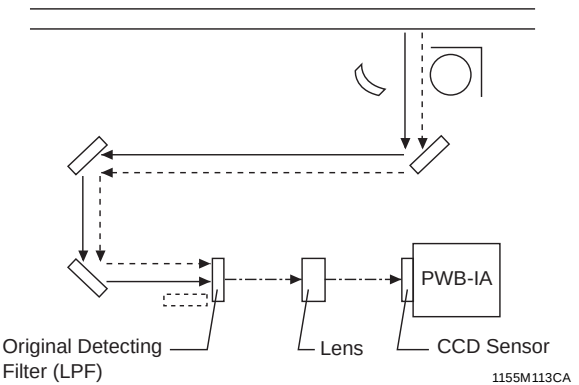
<Inch-based Area>



1155M099AA

①: Detection of Original
②,③: Return
④: Scanning of Original

- Detection is achieved using the EDH-1 pressure pad, the Original Detecting Filter, and the CCD Sensor. The copier implements detection independently in the scan and subscan directions.
- Because the EDH-1 pressure pad is yellow, the system can distinguish between the light reflected from the pad and the light reflected from the original.
- The original detecting filter is a low-pass filter (LPF) that passes visible light in the approximate region of 400nm to 460nm. The filter blocks almost all light in the 530nm to 700nm range. This reflectivity difference makes it possible for the CCD sensor to detect only the light that is coming from original.



1155M113CA

:Light reflected from original
:Light reflected from EDH-1 pressure pad
:Light reflected from original, after passing through filter (400nm to 460nm)

<Detection Conditions>

The system can detect originals that meet the following conditions.

- Edge coloration (wavelength) is between 400nm and 490nm, provided that average reflectivity of this color is at least 39%.
- Shape is rectangular.

Note that the system cannot detect the following types of original:

- OHP transparencies, translucent paper
- Sheets with edges not flush against the Original Glass
- Sheets whose shape is not rectangular
- Sheets with an image of OD = 0.5 or more in areas along the 1-mm-wide edge
- Sheets that are bright red, orange, or yellow

-Metric Area-

Actual Size of Original		Main Scan Direction				
		288.3mm and above	288.2 to 267.1mm	267.0 to 220.1mm	220.0 to 158.1mm	158.0mm or less
Subscan Direction	374.1mm and above	A3L	A3L	A3L	A3L	A3L
	374.0 to 340.1mm	A3L	A3L	B4L	B4L	B4L
	340.0 to 307.1mm	A3L	A3L	B4L	FLS	FLS
	307.0 to 288.3mm	A3L	A3L	B4L	A4L	A4L
	288.2 to 267.1mm	A3L	A3L	B4L	Letter-L	Letter-L
	267.0 to 220.1mm	A3L	A3L	B4L	A4L	A4L
	220.0 to 158.1mm	A4C	Letter-C	A4C	A4L	A5L
	158.0mm or less	A4C	Letter-C	A4C	A5C	A5L

L: Lengthwise C: Crosswise

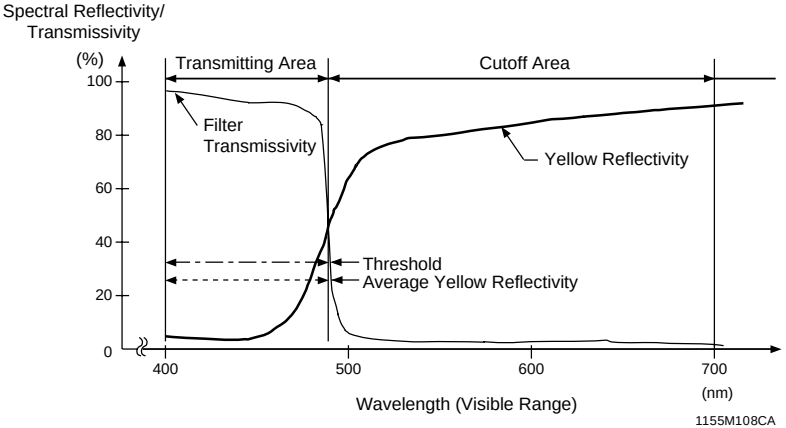
-Inch Area-

Actual Size of Original		Main Scan Direction			
		288.3mm and above	288.2 to 226.0mm	225.9 to 149.8mm	149.7mm or less
Subscan Direction	391.1mm and above	11 x 17	11 x 17	11 x 17	11 x 17
	391.0 to 365.7mm	11 x 17	11 x 15	11 x 15	11 x 15
	365.6 to 307.1mm	11 x 17	11 x 15	8.4 x 14	8.4 x 14
	307.0 to 288.3mm	11 x 17	11 x 15	A4L	A4L
	288.2 to 226.0mm	11 x 17	11 x 15	Letter-L	Letter-L
	225.9 to 149.8mm	A4C	Letter-C	Letter-L	invoiceL
	149.7mm or less	A4C	Letter-C	invoiceL	invoiceL

L: Lengthwise C: Crosswise

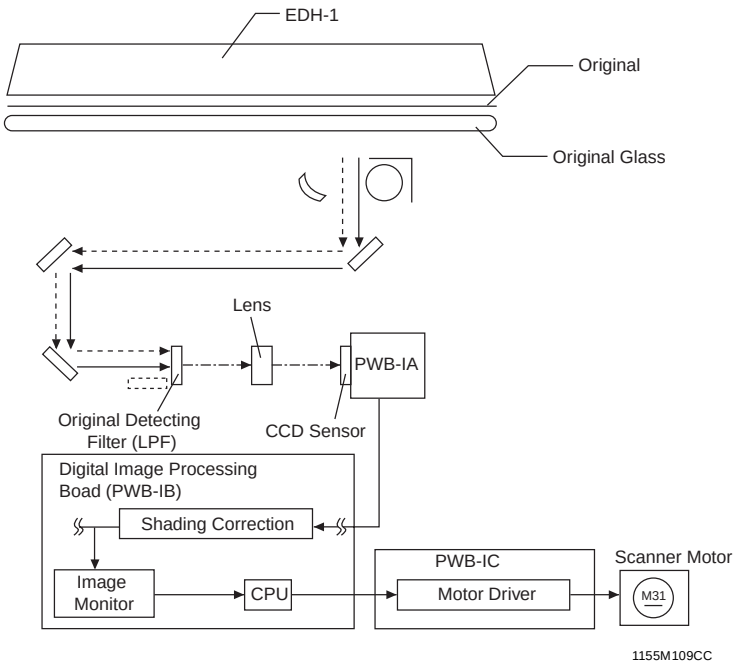
2) Detection System

- The following diagram shows the spectral reflectivity of the (yellow) EDH-1 pressure pad and the spectral transmissitivity of the original detecting filter.



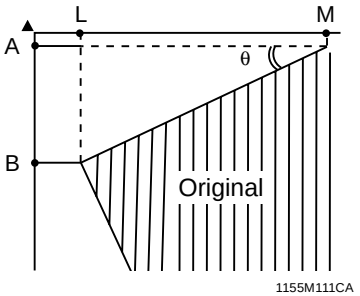
- The reflectivity of the yellow pressure pad, indicated by the bold line (———), averages above 80% in the wavelength range 530nm to 700nm, but below 26% in the range 400nm and 490nm.
- The filter's transmissitivity, indicated by the thin line (———), averages above 87% in the wavelength range 400nm to 460nm, but below 5% in the range 530nm and 700nm.
- When detection is operating, therefore, the yellow reflected light from the pad is cut off by the filter before it reaches the CCD sensor. The CCD sensor therefore receives light only from the original.
- Note, however, that the yellow pad does in fact reflect some light (an average of below 26%) within the 400nm to 490nm range. A threshold is therefore introduced with respect to reflectivity within this wavelength range, to prevent the system from interpreting this light as coming from the original.
- The CPU sets this threshold value based on the maximum reflectivity of the yellow light from the pad.

- The reflected light that passes through the filter reaches the CCD Sensor, which converts the light into an electrical signal (image data signal). This signal then passes into the Digital Image Processing Board, as illustrated below.



- The Image Monitor circuitry (within the Digital Image Processing board) extracts the image data that is coming from the edges of the original.
- The extracted edge data is used to calculate the original's size, its position, and its skew. The results of these calculations are then used to determine the reading area for the CCD sensor and scanning start point for the scanner.

<Calculation of Original's Skew>



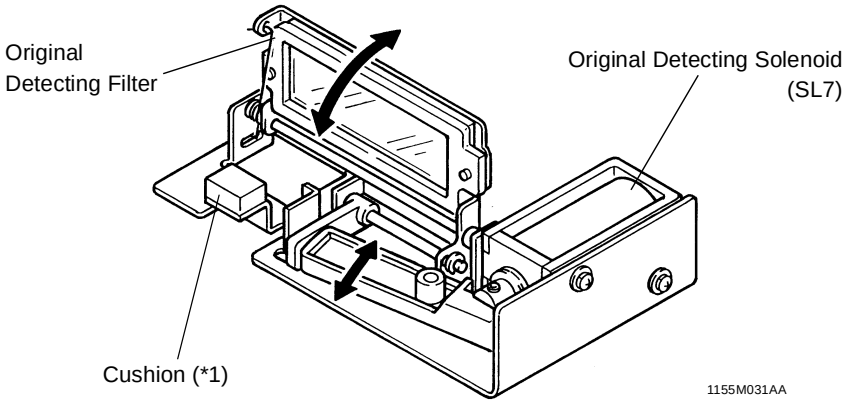
- The skew is calculated from the main-scan and subscan edge values, as follows.

(1) Skew = (B-A) / (M-L) = tanθ

- Relation (1) gives the angle of tilt.
  - If the user has set the skew warning mode to ON ("user's choice" setting), then the copier will output a warning if the detected skew is beyond the acceptable limit.

3) Original Detecting Filter Mechanism

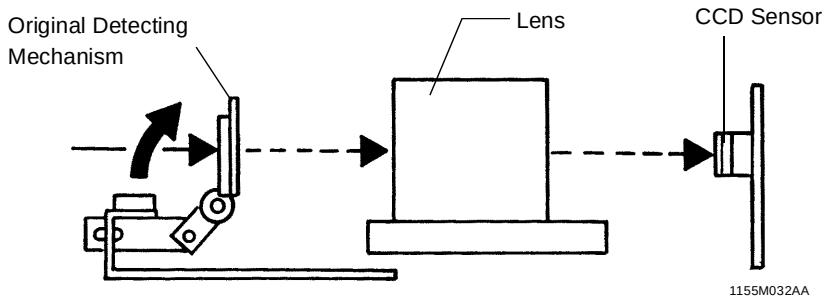
- Switching of the Original Detecting Solenoid causes the Original Detecting Filter to flip up and down, as shown below.



*1: The cushion muffles the sound of the filter dropping down (when the Original Detecting Solenoid switches OFF).

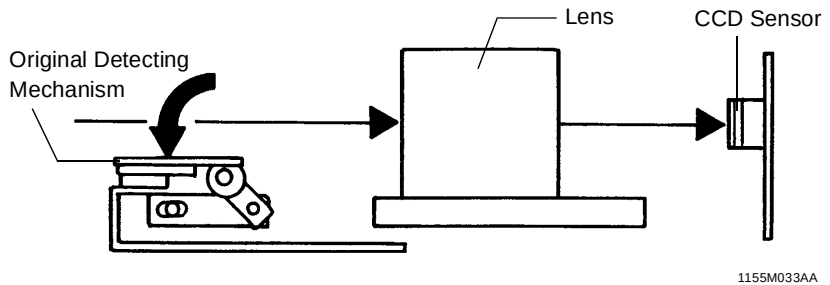
<Original Detecting Solenoid ON>

Detection operation in progress



<Original Detecting Solenoid OFF>

While copying is in progress, or while the copier is in standby



4) ON/OFF Control of Original Detecting Solenoid

- The Original Detecting Solenoid is controlled by the Original Detecting Solenoid remote signal output by the Digital Image Processing Board.

<Original Detecting Solenoid ON Timing>

① At Power Switch ON, or at CPU Reset

- When the copier is executing clamp/gain auto-adjustment, the Original Detecting Solenoid remote signal goes [L] after the exposure lamp comes on for the second time, causing the Original Detecting Solenoid to go ON. (This is done to check the operation of the Original Detecting Filter.)

② At Start Key ON

- If the copier is set to a mode that uses original detection: The Original Detecting Solenoid remote signal goes [L] when the shading sequence is completed, causing the Original Detecting Solenoid to come ON. (The Original Detecting Solenoid remote signal and the Original Detecting Solenoid solenoid do not operate if the copier is set to a mode that does not use original detection.)

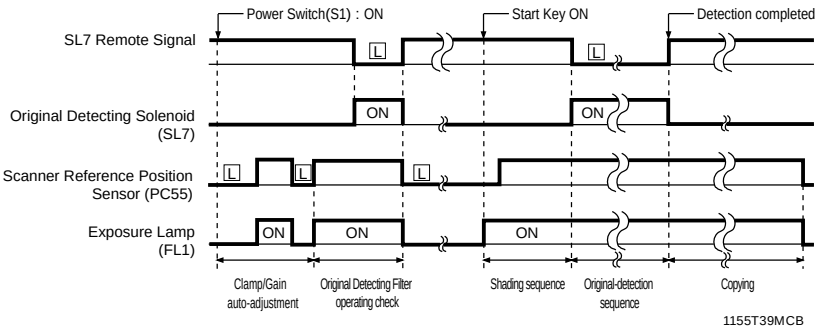
<Original Detecting Solenoid OFF Timing>

① At Power Switch ON, or at CPU Reset

- When the copier is executing clamp/gain auto-adjustment, the Original Detecting Solenoid remote signal goes [H] after the Original Detecting Solenoid comes ON. This causes the Original Detecting Solenoid to go OFF.

② At Start Key ON

- The Original Detecting Solenoid remote signal goes [H] when the original detection sequence is completed, causing the Original Detecting Solenoid to go OFF.



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
SL7	PJ9IB-3B	[L]	[H]	A~B-15~16

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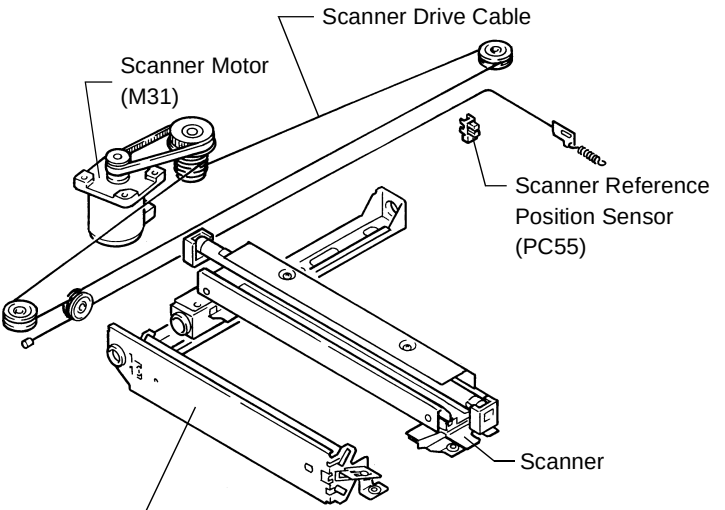
8-6. Drive Mechanism for Scanner and Mirrors Carriage

<Scanner>

- As the scanner moves, light from the exposure lamp projects evenly along the original, reflects off the original, bounces off Mirror #1, and moves to Mirrors #2 and #3.
- The scanner is driven by the Scanner Motor by means of a single Scanner Drive Cable. The scanner speed for 100% magnification is taken as the “reference speed”; the actual speed is varied (with respect to the reference speed) in accordance with the magnification setting.
- The scanner’s home position is at the Scanner Reference Position Sensor. This position serves as the reference for the scan motion.

<Mirrors Carriage (Mirrors #2 and #3)>

- Mirror #2 and Mirror #3 are fixed to the carriage at a right angle to one another. Light reflected from Mirror #1 bounces off Mirrors #2 and #3, passes through the lens, and moves to Mirror #4.
- The carriage for Mirrors #2 and #3 is driven by the Scanner Motor by means of the Scanner Drive Cable and a pulley. The carriage moves at half the speed of the scanner, maintaining a constant optical path length between the Original Glass and the PC Drum.



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8-7. Scanner Motor Drive Control

<Overview>

- The Scanner Motor is a DC server motor. The motor is controlled by PWM (pulse width modulation); that is, the speed controlled by varying the average width of the motor drive pulse.
- The motor incorporates a built-in photosensor and pulse disk that generate a “monitor” pulse with each rotation of the shaft. This signal is transmitted to the Image Processing Board, which uses it to detect the motor’s speed and travel distance.
- The Processing board determines the current motor speed based on the rate of the incoming monitor pulse, and adjusts the scanner drive pulse as necessary to maintain stable motor speed.
- At the same time, the SCP uses the monitor-pulse count to control the scanner’s travel distance, where the pulse count required for a full motion varies according to the paper size and the magnification.

	Control Signal	Scan	Stop	WIRING DIAGRAM
M31 (Scan Signal)	PJ9IB-10B	L	H	D-17

	Control Signal	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC55	PJ9IB-2A	H	L	D-18

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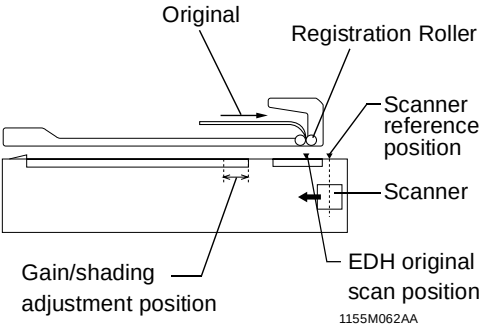
8-8. Scanner Movement

<Operation in EDH-1 Mode>

- At Start Key ON

①

EDH-1 : Start transport of original sheet.
IR Section : Turn the Exposure Lamp on, complete warmup, and then start scanner movement.
Main Unit : Start transport of copy paper.



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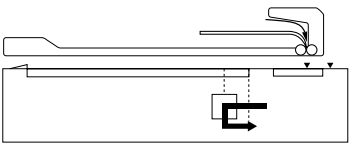
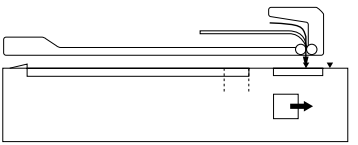
②

EDH-1 : Stop the original sheet at the transport roller.
IR Section: Adjust gain; sample the shading data.
Main Unit : Continue transport of copy paper.


1155M063AA

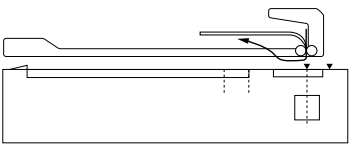
③

EDH-1 : Start transport of original.
IR Section: Move scanner to EDH-1 original scan position.
Main Unit : Continue transport of copy paper.


1155M064AA

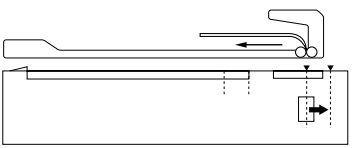
④

EDH-1 : Transport the original sheet (eject).
IR Section: Scan (read) the image, and store the image data into memory.
Main Unit : Prepare memory output, then begin printing.


1155M065AA

⑤

EDH-1 : Complete original transport, and then stop.
IR Section: Complete the image read, then move to scanner reference position, and then stop.
Main Unit : Complete printing, and then stop.


1155M066AA

<Operation in Manual Placement Mode>

- At Start Key ON

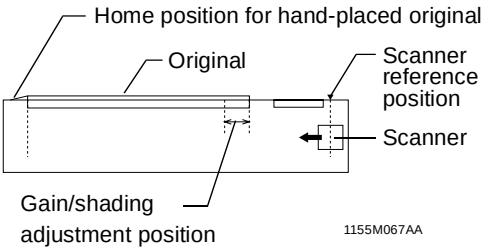
①

IR Section: Set the Exposure Lamp on, complete warm-up, and then start scanner movement.

Main Unit:

If APS : Standby

If not APS : Start transport of copy paper.



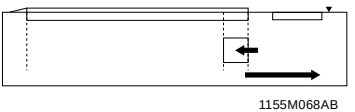
②

IR Section: Adjust gain; Scanner returns to its home position after shading data sampling correction.

Main Unit:

If APS : Standby

If not APS : Feed copy paper.



③

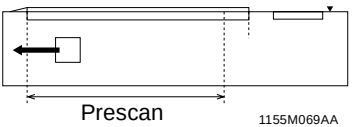
IR Section: Run prescan to detect original's size.

Main Unit:

If APS : Standby

If not APS: Stop copy paper at timing-roller area (standby)

<Metric Area>



③

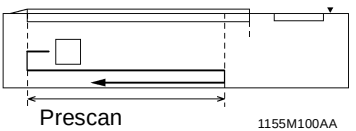
IR Section:
- Scan (read) the image, and store the image data into memory.
- Move to scanner reference position, then stop.

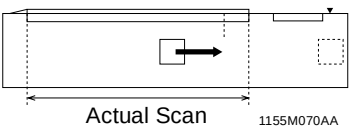
Main Unit:

If APS :
- Select copy paper based on original's size. Begin copy paper feed. Stop copy paper at synchronizing roller area.
- Prepare memory output, then begin printing.
- Stop when printing is completed.

If not APS :
- Prepare memory output, then begin printing.
- Stop when printing is completed.

<Inch Area>

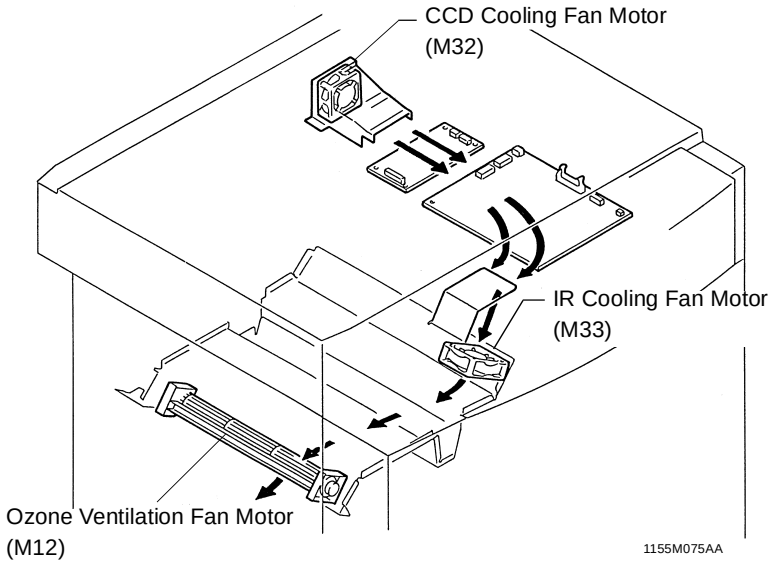




1155SBM0809A

8-9. CCD and IR Cooling Fan Motors

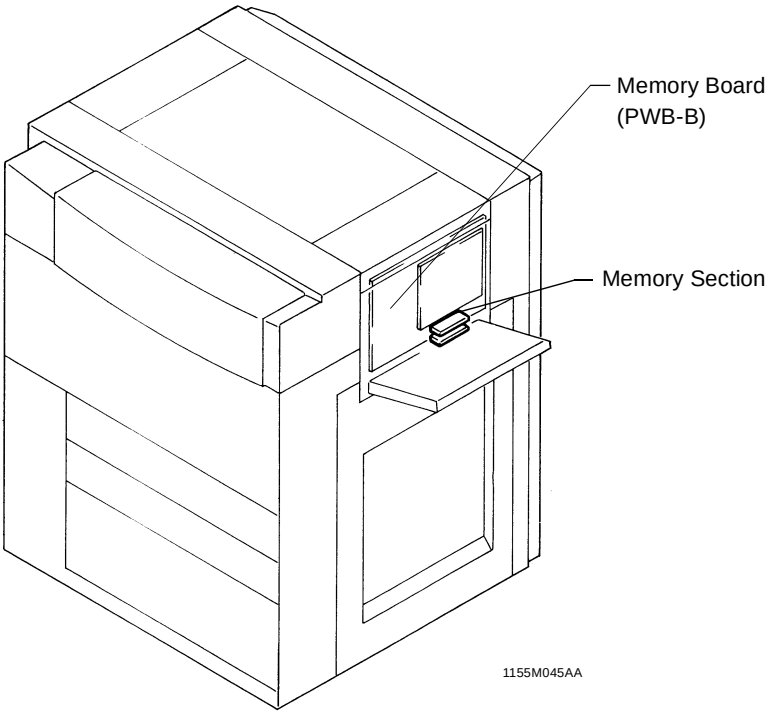
- Fans are installed to prevent the IR section from overheating as a result of the heat generated by the Exposure Lamp and other components. The CCD Cooling Fan Motor draws in air from the outside. The IR Cooling Fan Motor passes heated air to the Ozone Ventilation Fan Motor, which then passes it out of the unit.



	Control Signal	ON	OFF	WIRING DIAGRAM
M32	PJ10A-9B	L	H	A~B-10
M33	PJ9IB-1B	L	H	B-15~16

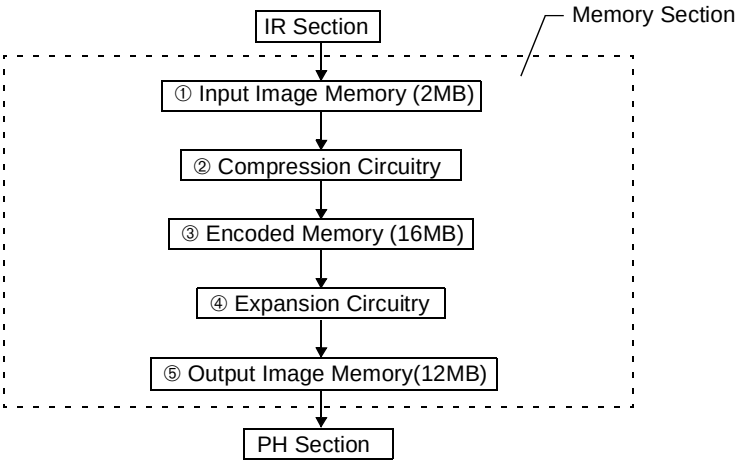
1155SBM0900A

9. MEMORY SECTION



- The Memory Board contains built-in memory. This memory enables rapid storage and handling of the large quantities of image data generated from the originals.
- The memory receives the image data from the IR section. The memory allows for efficient coordination between the IR section and the printer section, thereby improving the copying performance.
- Standard memory capacity is 16MB. The capacity can be increased by installing expansion memory or a hard disk.

- **Memory Storage Image Processing System**
- The memory section receives binarized image data from the IR section's Digital Image Processing Board, processes the data as described below, and outputs the result to the PH section.



① Input Image Memory

- Stores binarized image data, which then moves into the next block for further compression.
- Consists of DRAM, and is capable of storing about one A4 page of copy data.

② Compression Circuitry

- Inputs the binarized data from the Image Memory block, one line at a time, and further compresses it.
- Use of this compression step makes it possible for the next block (Encoded Memory block) to hold data.

③ Encoded Memory

- Stores the encoded (compressed) data received from the previous block.
- Consists of 16MB of DRAM. Capable of holding data for up to about 200 pages of standard A4 originals.

④ Expansion Circuitry

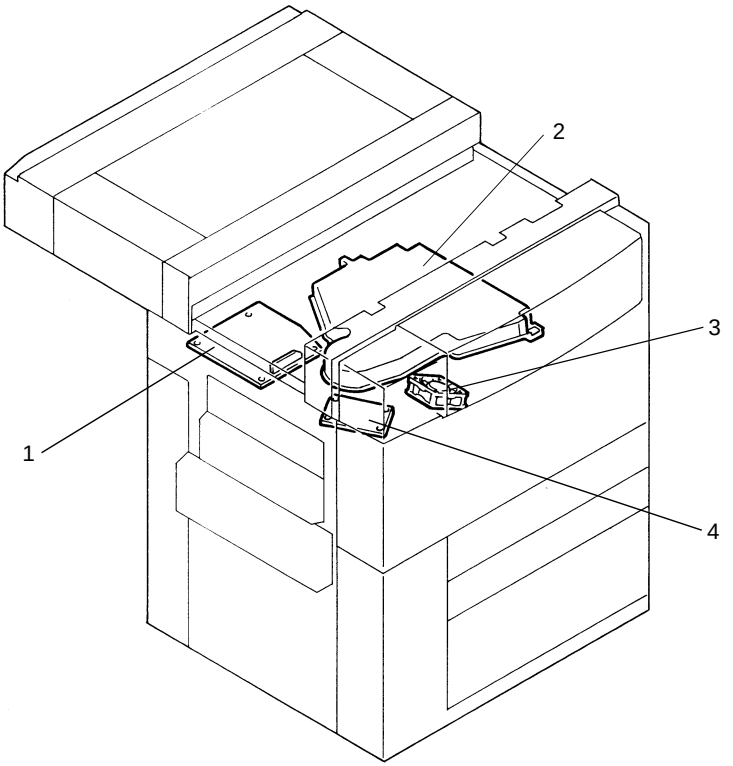
- This block expands the data from the Encoded Memory block (restores the data to the form it had prior to compression by the Compression Circuitry block).

⑤ Output Image Memory

- Stores the expanded image data and performs the image rotation, shift, erase, and other editing functions for subsequent output to the printer.

10. PH SECTION

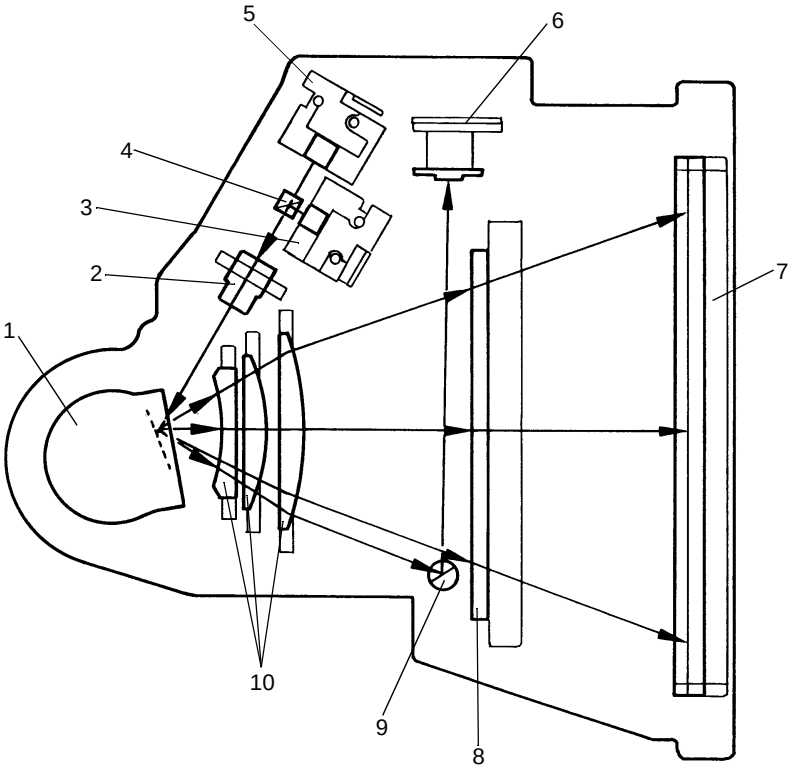
- Image data from the memory section is corrected in accordance with the PH copy characteristics. The laser diode (LD) then generates the latent image defined by the corrected data onto the PC drum.
- This copier is provided with two types of Laser Units, one for 400 dpi and the other for 600 dpi. The 400-dpi Laser Unit emits laser light when the machine is used as a copier, while the 600-dpi Laser Unit emits light when the machine is used as a printer hooked up to a personal computer.



1155M046AA

1. PH Board (PWB-J)
2. PH Unit
3. CCD Cooling Fan Motor (M32)
4. Polygon Motor Control Board (UN5)

● PH (Printer Head) Components

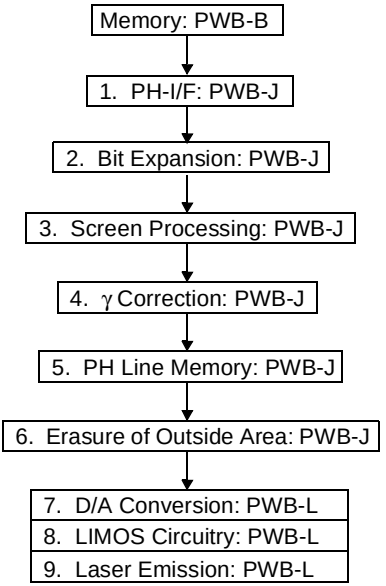


1. Polygon Motor (M4)
2. Cylindrical Lens
3. 600dpi LD/Collimeter Unit
4. Beam Splitter
5. 400dpi LD/Collimeter Unit
6. SOS Sensor Board (PWB-G)
7. Return Mirror
8. Long Cylinder Lens
9. SOS Mirror
10. f-θ Lenses

1155SBM1001A

10-1. PH Image Processing System

● The PH image processing system is composed of the following blocks. These blocks implement a variety of types of corrective processing, as described below.

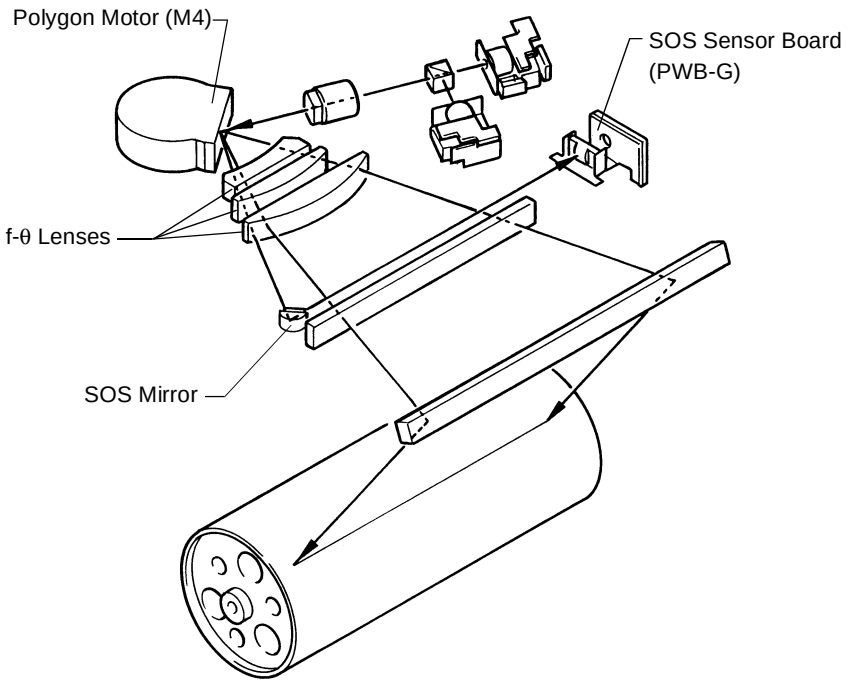

Memory: PWB-B
1. PH-I/F: PWB-J
2. Bit Expansion: PWB-J
3. Screen Processing: PWB-J
4. γ Correction: PWB-J
5. PH Line Memory: PWB-J
6. Erasure of Outside Area: PWB-J
7. D/A Conversion: PWB-L
8. LIMOS Circuitry: PWB-L
9. Laser Emission: PWB-L

1. PH-I/F: PWB-J
   Blocks out external noise during transfer of image density data from the memory section (PWB-B) to the PH section.
2. Bit Expansion: PWB-J
   If image quality is set to “photo” mode, this block expands binary data values into 8-bit data values. (If image quality is set to “character mode”, the block outputs binary image density data values without change.)
3. Straight-Line Screen Processing: PWB-J
   This section operates only if image quality is set to “photo.” The section enhances visible copy quality by improving the grain of the copy's middle tones, stabilizing the density reproduction of low-density areas, and reducing pitch disparities in the subscan direction. These improvements are obtained by combining pixels into groups of 2, and printing the two pixels such that one of the pixels gets most of the density. Vertical lines appear along the pixel lines that take the reduced density.
4. γ Correction: PWB-J
   Adjusts data so that the copied image's gradation characteristics will be proportional to the gradation characteristics of the original. Adjustment is made by selecting the appropriate gamma look-up table, then using the table data to convert image density values into appropriate laser intensity values.
5. PH Line Memory: PWB-J
   Corrects for differences in data transfer frequency with respect to PH line memory.
6. Erasure of Outside Area: PWB-J
   Erases the area outside of the image area, so as to prevent firing of the laser over non-image areas.
7. D/A Conversion: PWB-L
   Converts the 8-bit laser intensity data values into analog laser intensity voltages.
8. LIMOS Circuitry: PWB-L
   Compares the received laser intensity voltage with the detected LD (laser diode) emission voltage, and uses the difference between these values as the bases for controlling LD current and emission level.
9. Laser Emission: PWB-L
   - Fires laser onto PC drum in accordance with the emission level given by the LIMOS block.
   - The copier employs 2 laser beams, and therefore prints two lines at a time.

1155SBM1002A

10-2. Laser Emission Timing (SOS Signal)

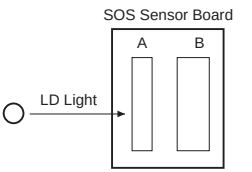
● The SOS-EXE ENBL signal from the Master Board forces the firing of the laser. The laser beam moves to the polygon motor, then through the lenses, then reflects off the SOS Mirror and hits the SOS Sensor Board, which generates the SOS signal.



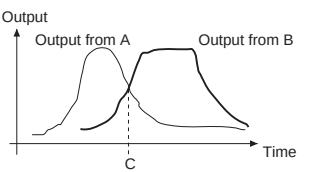
1155M009AA

● SOS signal output operates with respect to only one of the two laser beams. The SOS Sensor Board has two photoreceptors (A and B) set along the laser path. The A and B waveforms are therefore offset with respect to time, as the laser moves first across A and then across B. The point at which the two waveforms cross (Point C, below) gives the SOS signal output time.

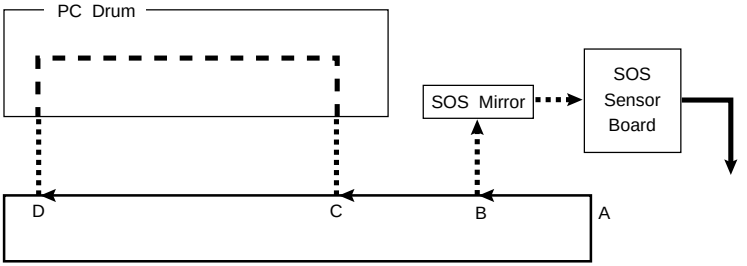
● This SOS signal determines the laser emission timing for two lines in the main scanning direction.



1155M088CA

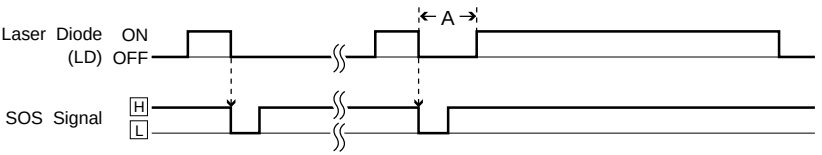


1155M089CA



A to B: LD force-ON area
B to C: LD OFF
C to D: Laser beam area according to the image data

1155M087CA



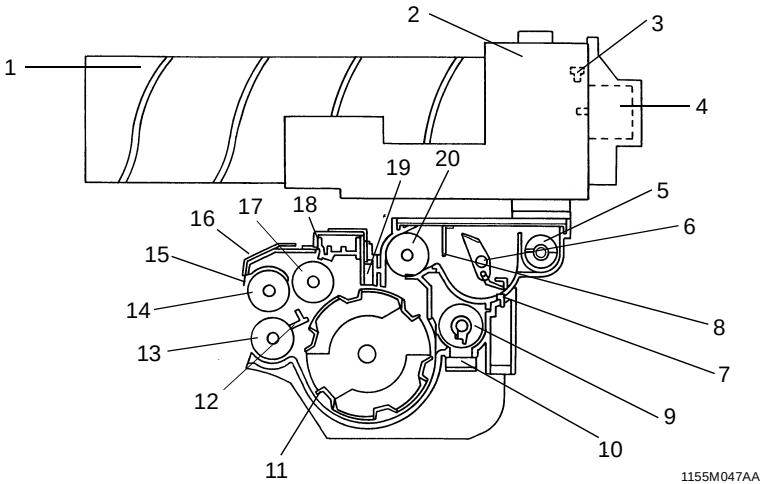
A : Varies depending on the image area (paper size and zoom ratio).

1155T41MCB

1155SBM1100A

11. DEVELOPING UNIT

- This copier employs the New Micro-Toning developing system equipped with three Sleeve/Magnet Rollers.
- The toner fed up to the Toner Replenishing Sleeve/Magnet Roller is supplied to the turning 1st and 2nd Sleeve/Magnet Rollers. From there, it is supplied to the electro-static latent image on the surface of the PC Drum to form a visible, developed toner image of the original.

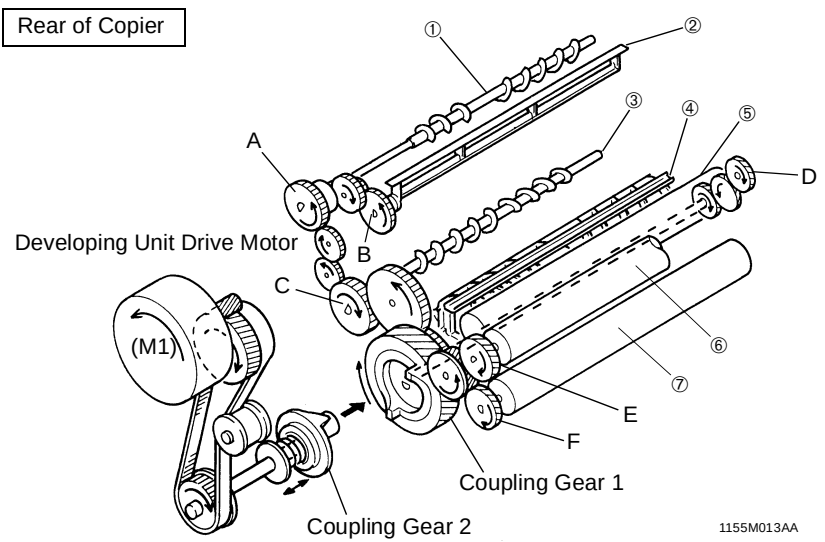


1 Toner Bottle
2 Toner Bottle Holder
3 Toner Bottle Home Position Sensor PC4
4 Main Hopper Toner Replenishing Motor M9
5 Sub Hopper Toner Conveying Screw
6 Sub Hopper Toner Agitating Lever
7 Sub Hopper Toner Empty Switch S7
8 Toner Regulator
9 Developer Conveying/Agitating Screw
10 ATDC Sensor UN4
11 Bucket Roller
12 Developer Regulator
13 2nd Sleeve/Magnet Roller
14 1st Sleeve/Magnet Roller
15 Developer Scattering Prevention Mylar
16 Developer Scattering Prevention Plate
17 Toner Replenishing Sleeve/Magnet Roller
18 Doctor Blade
19 Magnet Sheet
20 Sub Hopper Toner Replenishing Roller

1155SBM1101A

11-1. Developing Unit Drive Mechanism

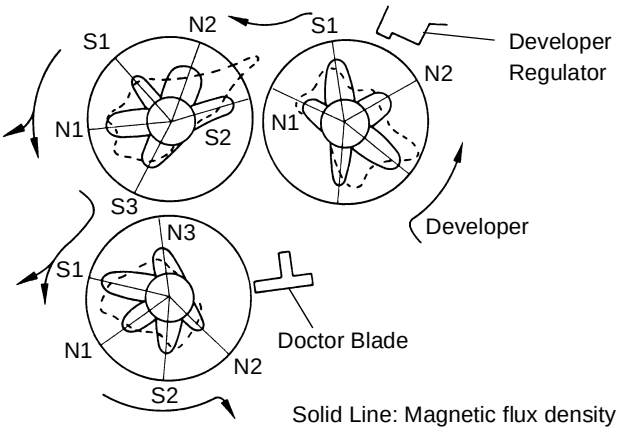
- Drive for the Developing Unit comes from Developing Unit Drive Motor.
- Coupling Gear 2 is spring-loaded. If the protruding part of Coupling Gear 1 makes contact with that of Coupling Gear 2 when the PC Unit is slid into the copier, spring-loaded Coupling Gear 2 is pushed back toward the rear of the copier allowing the PC Unit to be slid into position. When drive is later transmitted to the Developing Unit, Coupling Gear 2 is pushed to the front by the tension of the spring to mesh positively with Coupling Gear 1.
- The following parts are driven by the Developing Unit Drive Motor. Given in ( ) are the drive gears keyed to the illustration.
  - Sub Hopper Toner Conveying Screw ① (A)
  - Sub Hopper Toner Agitating Lever ② (B)
  - Developer Conveying/Agitating Screw ③ (C)
  - Bucket Roller ④ (Coupling Gear 1)
  - Toner Replenishing Sleeve/Magnet Roller ⑤ (D)
  - 1st and 2nd Sleeve/Magnet Roller ⑥, ⑦ (E, F)



1155SBM1102A

11-2. Magnetic Pole Positioning

- Each Magnet Roller of the Toner Replenishing, 1st, and 2nd Sleeve/Magnet Rollers is made up of five magnets asymmetrically packed.
- The Bias Plate at the front of the Developing Unit ensures that the angle of principal magnetic pole N1 of the 1st Sleeve/Magnet Roller and that of principal magnetic pole S1 of the 2nd Sleeve/Magnet Roller will not be changed with respect to the center of the PC Drum.
- The torsion springs at the front and rear ends of the Developing Unit press the Ds Positioning Collars of the 1st and 2nd Sleeve/Magnet Rollers tightly against the PC Drum, thus keeping constant the distance between each Sleeve/Magnet Roller and the PC Drum.



1075M058AA

<Toner Replenishing Sleeve/Magnet Roller>

N3, S2 : The developer fed by the Bucket Roller is attracted onto the surface of the Sleeve Roller.

N2 : The developer brush is formed by this pole. The height of the brush is moderate before the brush is regulated by the Doctor Blade.

S1 : This pole functions to hold the developer brush firmly onto the surface of the Sleeve Roller as it is fed onto the point of supply to the 1st Sleeve/Magnet Roller.

N1 : The developer brush is formed so that the developer attracted onto the Toner Replenishing Sleeve/Magnet Roller is efficiently transferred onto the 1st Sleeve/Magnet Roller.

<1st Sleeve/Magnet Roller>

S2 : The developer fed by the Toner Replenishing Sleeve/Magnet Roller is positively attracted onto the surface of the Sleeve Roller.

N2, S1 : Two poles are provided between the relatively wide gap between S2 and N1.

N1 : This is the principal magnetic pole and its lines of magnetic flux at the point of development are perpendicular to the surface of the PC Drum. Therefore, when toner is attracted to the latent image, the carrier is firmly held onto the Sleeve Roller.

S3 : The developer brush is formed so that the developer attracted onto the 1st Sleeve/Magnet Roller and not used for development is efficiently transferred onto the 2nd Sleeve/Magnet Roller.

<2nd Sleeve/Magnet Roller>

N3 : The developer fed by the 1st Sleeve/Magnet Roller is positively attracted onto the surface of the Sleeve Roller.

S1 : This is the principal magnetic pole and its lines of magnetic flux at the point of development are perpendicular to the surface of the PC Drum.

S1-N1 : A strong magnetic force is provided between these two poles to ensure that the carrier is firmly held onto the Sleeve Roller.

S2-N2 : The magnetic flux density between these two poles is made low to ensure that the developer remaining on the Sleeve Roller is smoothly recycled to the Developer Mixing Chamber. The developer which has fallen off the Sleeve Roller is mixed together with fresh toner in the Developer Mixing Chamber.

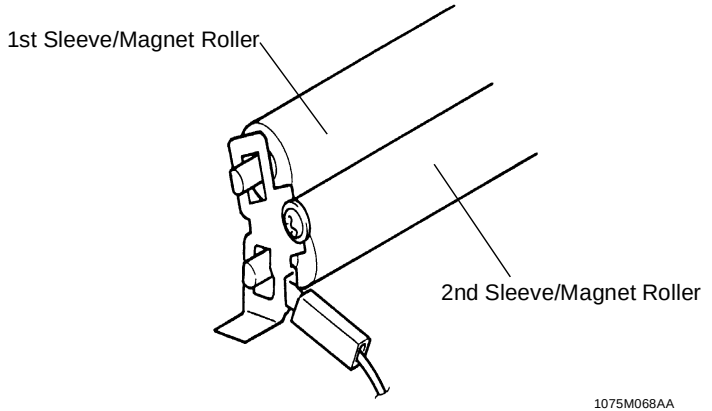
N2-N3 : The interval between these two poles is wide and there is the Developer Regulator installed between them. This prevents the developer remaining on the Sleeve Roller from being fed back to the PC Drum.

1155SBM1103A

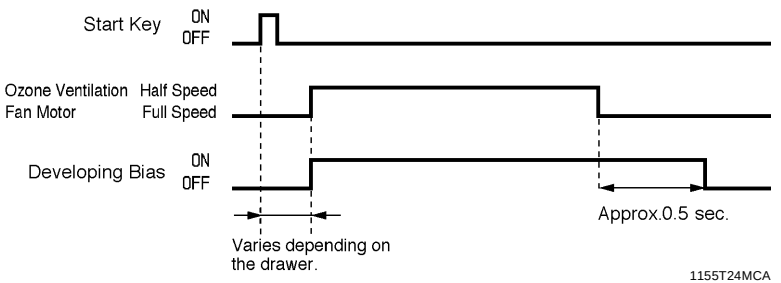
11-3. Developing Bias

A negative voltage (Vb = Developing Bias voltage) is applied to the Sleeve Roller to prevent a foggy background on the copy. The amount of toner attracted onto the surface of the PC Drum depends on how much lower the PC Drum surface potential (Vi) is than Vb (i.e., the potential difference).

- When the potential difference is large, a greater amount of toner is attracted.
- When the potential difference is small, a smaller amount of toner is attracted.



1075M068AA



1155T24MCA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
Developing Bias	PJ9A-7A	L	H	D-12

11-4. ATDC Sensor

During operation, the ATDC sensor detects the T/C ratio (toner-to-carrier ratio) in the developer mixing chamber. If the detected ratio is below the target level of 4%, the copier will add toner. Note that the reference T/C ratio of 4% (at setup) produces an ATDC sensor output of 2.5V.

The copier can be set so that it disables copy operation if the T/C ratio drops below 3.0% while a Toner Empty condition exists. (This disable feature may be set ON or OFF by a Service Choice function.) If copying has been disabled in this way, it will automatically be re-enabled when the Toner Empty condition is cleared.

Opening and then closing the upper door while the copier Toner Empty condition exists will cause the copier to begin toner replenishing. (Entry of toner into the sub-hopper immediately clears the Toner Empty condition. Toner replenishing continues until the toner amount reaches the target level.)

CONTROLLED PART	CONTROL SIGNAL	REFERENCE T/C RATIO	STANDARD OUTPUT VOLTAGE	WIRING DIAGRAM
UN4	PJ8A-10B	4.5 (%)	2.32 (V)	D-4

<Automatic Adjustment of ATDC Sensor>

The ATDC sensor is adjusted automatically when F8 mode is run.

* Running F8 mode after starter has been replaced.
  When toner agitation is completed (after the START key is pressed), the CPU reads the value output by the ATDC sensor, then adjusts the sensor's gain so that the sensor output value becomes 2.5V.

NOTE

In general, F8 mode should be executed only when the starter is replaced. Running F8 mode at other times may result in an incorrect setting for the reference T/C ratio. If the ATDC setting has been cleared as a result of RAM-board replacement, use the Service Mode's Element Data function to set the ATDC value back to the setting it had just prior to the board replacement.

<Toner Replenishing Control by ATDC Sensor>

In general, the ATDC sensor detects the T/C ratio once every copy. The detected value is compared against the target value (generally 4%, but may vary in accordance with image stabilizing control). If the result indicates that resupply is required, the Sub-hopper Toner Replenishing Motor is activated so as to supply the appropriate amount. The amount of resupply depends on the comparison result, as follows.

Toner Resupply Mode	Conditions	Resupply Quantity*
Large resupply quantity	The T/C value detected by the ATDC sensor is at least 0.5% below the target T/C value.	Approx. 192mg
Small resupply quantity	The T/C value detected by the ATDC sensor is below the target T/C value by less than 0.5%.	Approx. 96mg
Fixed resupply quantity	The T/C value detected by the ATDC sensor is above the target T/C value by less than 0.5%.	Approx. 16mg
No resupply	The T/C value detected by the ATDC sensor is above the target T/C value by at least 1%.	–

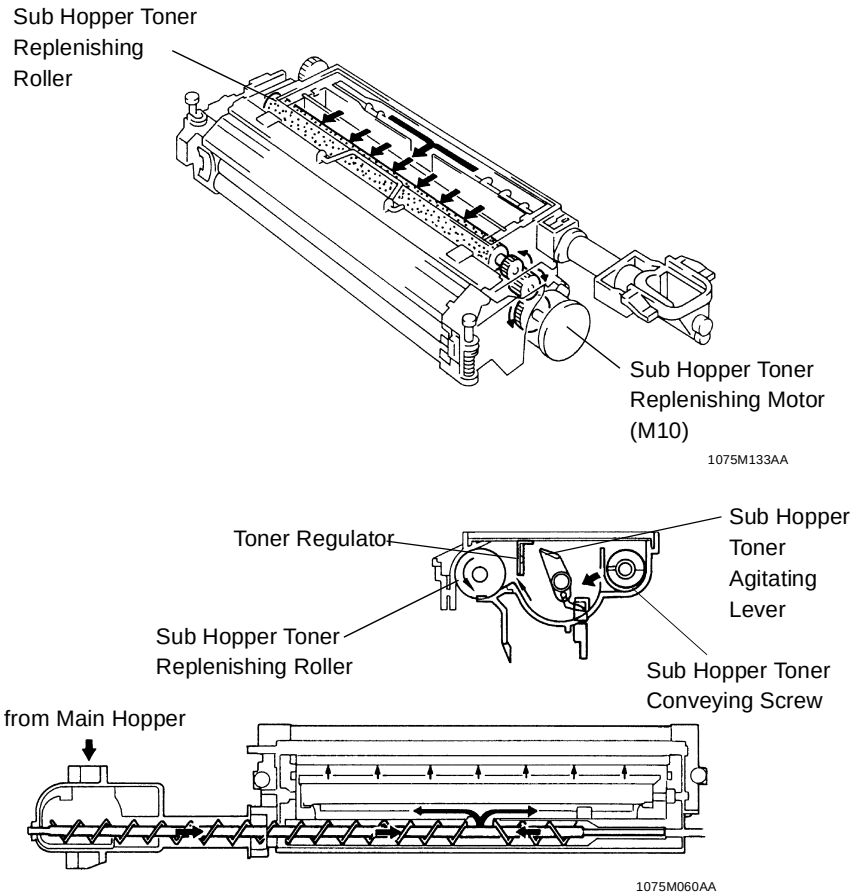
* Quantity varies according to the size of the paper being copied. The table above shows quantities for A4 paper.

If the detected T/C is more than 3% below the target level, the copier will suspend copy operation and start replenishing of toner. Copying resumes when the T/C reading gains 1 percentage point. But note that this feature does not operate if a Toner Empty condition has been detected.

1155SBM1105A

11-5. Sub Hopper Toner Replenishing Mechanism

Sub Hopper Toner Replenishing Motor is energized for the toner replenishing time which is calculated based on the ATDC Sensor output voltage (T/C ratio) and the size of the paper being fed through the copier.



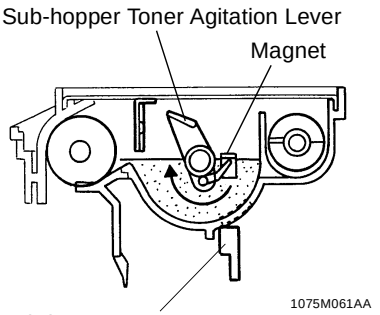
CONTROLLED PART	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M10	PJ2A-9A	L	H	D-4

1155SBM1106A

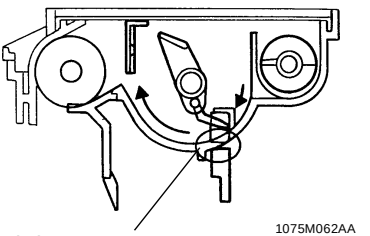
11-6. Sub-hopper Toner Empty Detection Mechanism

- Detection is effected by a magnet that rotates together with the sub-hopper's toner agitation lever. When toner falls to a low level, the magnet will pass close to switch Sub-hopper Toner Empty Switch on each rotation, causing the switch to go repeatedly ON and OFF.
- While the toner is above a certain level (the "near-empty" level), the magnet is pushed upward and inward (relative to the lever) as it hits the toner on the downward rotation. This keeps the magnet relatively distant from the Sub-hopper Toner Empty Switch, so that the switch does not activate.
- When toner falls to the "near-empty" level, the magnet comes close to the Sub-hopper Toner Empty Switch on each downward rotation and then moves away on each upward rotation, causing the Sub-hopper Toner Empty Switch to go repeatedly ON and OFF. Continuation of this ON/OFF pulse for a period of 60 seconds causes the copier to recognizes a "toner near-empty" condition. The copier will then generate a "toner empty" condition less than T/C 3% ratio copies after the "near empty" condition is recognized.

Toner Present



Toner Empty



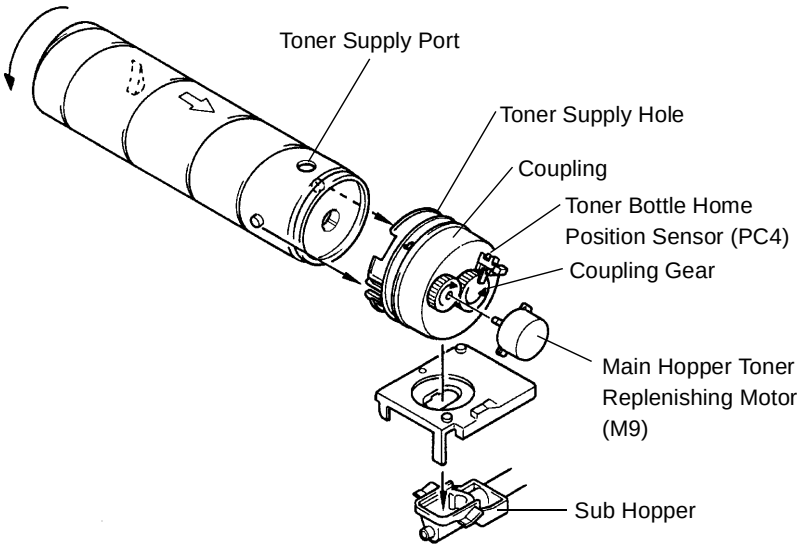
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
S7	PJ8A-12B	L	H	D-4

1155SBM1107A

11-7. Main Hopper Toner Replenishing Mechanism

When toner-empty ON/OFF pulses are detected in the Sub Hopper, Main Hopper Toner Replenishing Motor is energized to turn the Toner Bottle, thereby supplying toner from the Main Hopper to Sub Hopper.

- The Home Position Detecting Plate fitted to the coupling and Toner Bottle Home Position Sensor ensure that the Toner Supply Port in the Toner Bottle is positioned at the top whenever the Toner Bottle is stopped.



1161M041AA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M9	PJ2A-10A	L	H	F-4

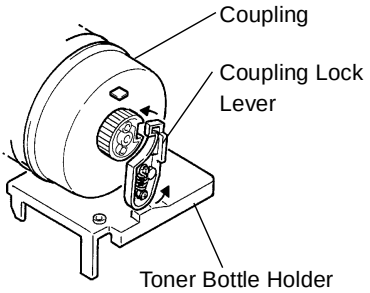
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
PC4	PJ2A-5A	L	H	F-19

1155SBM1108A

11-8. Coupling Locking Mechanism

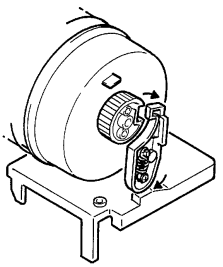
The coupling is locked in position to prevent it from moving when the Toner Bottle is removed or installed. When the Toner Bottle Holder is swung out to the front, the tension of the spring causes the Coupling Lock Lever to hook the coupling. When the holder is swung into position, the bottom of the Coupling Lock Lever is pushed by the protrusion of the holder, disengaging the Coupling Lock Lever from the coupling.

When Toner Bottle Holder is Swung in



1155M040AA

When Toner Bottle Holder is Swung out

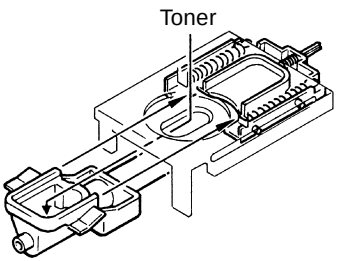


1161M043AA

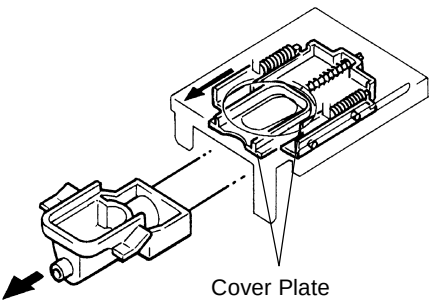
1155SBM1109A

11-9. Toner Supply Port Covering/Uncovering Mechanism

The Toner Supply Port in the Toner Bottle Holder is covered to prevent toner from dropping into the inside of the copier when the PC Unit is slid out of the copier. When the PC Unit is in the copier, the Sub Hopper keeps the Toner Supply Port uncovered. When the PC Unit is slid out of the copier, the tension of the springs slides the Cover Plate to the front, covering the Toner Supply Port.



1075M066AA



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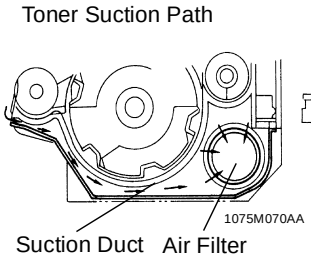
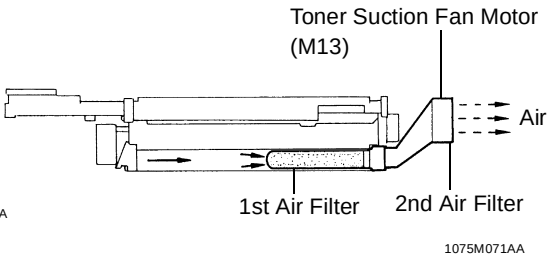
1155SBM1110A

11-10. Toner Suction Fan Motor

- This copier is provided with a Suction Duct under the 2nd Sleeve/Magnet Roller. Toner particles from the Developing Unit are drawn in through the Suction Duct so that they will not fall over the Pre-Image Transfer Guide Plate and Image Transfer/ Paper Separator Coronas Unit.
- The toner particles are drawn through the Suction Duct and collected by the Air Filter as the air is drawn out of the copier by Toner Suction Fan Motor.

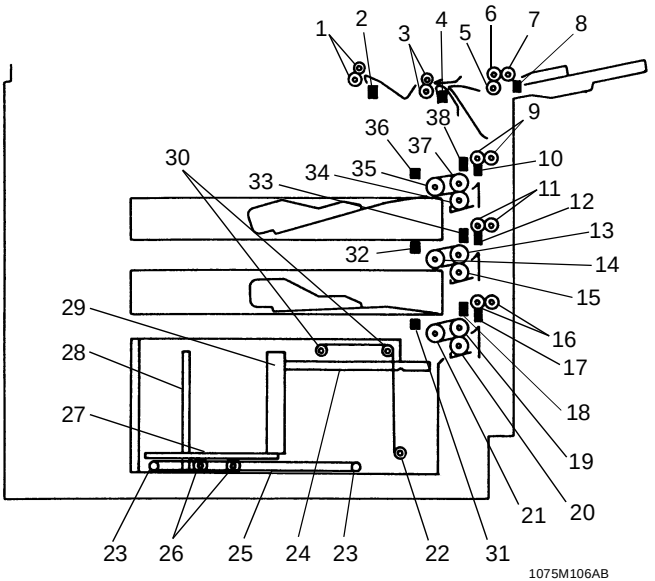




	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M13	PJ2A-3B	L	H	F-4

12. PAPER TAKE-UP/FEED SECTION

Construction

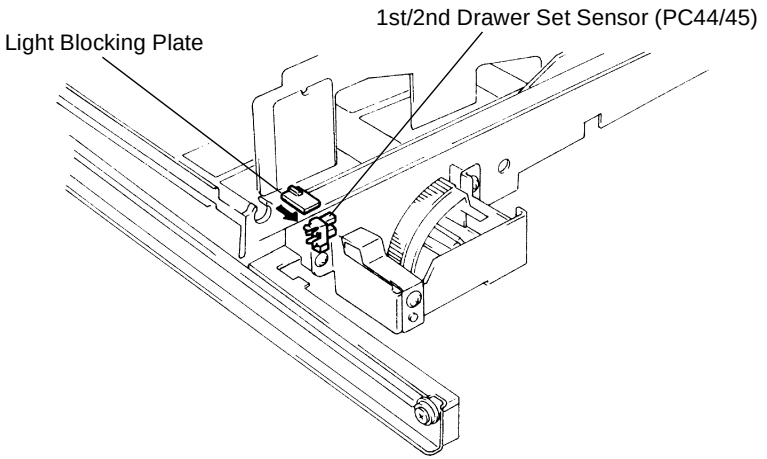


1. Synchronizing Roller
2. Paper Leading Edge Sensor PC2
3. Transport Rollers
4. Transport Roller Sensor PC1
5. Manual Bypass Separator Roll
6. Manual Bypass Feed Roll
7. Manual Bypass Take-Up Roll
8. Manual Feed Paper Empty Sensor PC6
9. Vertical Transport Roller 1
10. Vertical Transport Sensor 1 PC36
11. Vertical Transport Roller 2
12. Vertical Transport Sensor 2 PC37
13. 2nd Drawer Feed Roll
14. 2nd Drawer Paper Take-Up Roll
15. 2nd Drawer Separator Roll
16. Vertical Transport Roller 3
17. Vertical Transport Sensor 3 PC38
18. 3rd Drawer Paper Take-Up Sensor PC34
19. 3rd Drawer Feed Roll
20. 3rd Drawer Separator Roll
21. 3rd Drawer Paper Take-Up Roll
22. Wire Take-Up Pulley
23. Tension Pulley
24. Main Tray
25. Shifter Transport Timing Belt
26. Shifter Transport Roller
27. Shift Tray
28. Shifter
29. Shift Gate
30. Pulley
31. 3rd Drawer Paper Empty Sensor PC50 (at front of copier) 3rd Drawer Lift-Up Sensor PC42 (in rear of copier)
32. 2nd Drawer Paper Empty Sensor PC49 (at front of copier)
    2nd Drawer Lift-Up Sensor PC41 (in rear of copier)
33. 2nd Drawer Paper Take-Up Sensor PC33
34. 1st Drawer Separator Roll
35. 1st Drawer Paper Take-Up Roll
36. 1st Drawer Paper Empty Sensor PC48 (at front of copier) 1st Drawer Lift-Up Sensor PC40 (in rear of copier)
37. 1st Drawer Feed Roll

1155SBM1201A

12-1. Drawer-in-Position Detection

● When the 1st/2nd Drawer is slid into the copier, the light blocking plate in the rear of the drawer blocks 1st/2nd Drawer Set Sensor (L).
The copier then knows that the drawer has been slid into position.



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	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC44	PJ15F-5B	H	L	H-23
PC45	PJ14F-5B	H	L	G-23

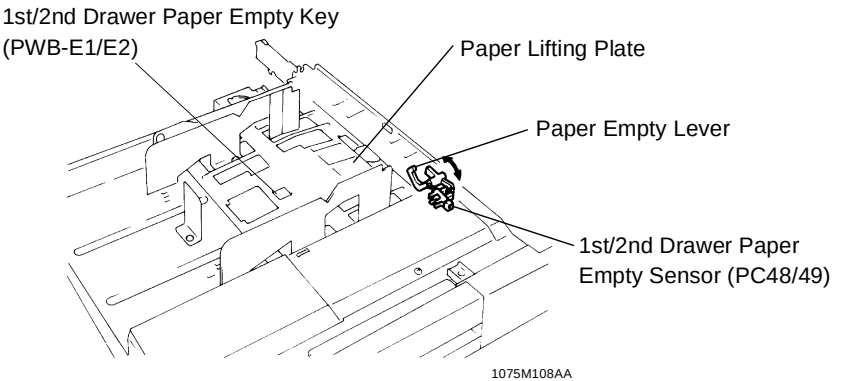
12-2. Paper Empty Detection

(1) Metric Areas

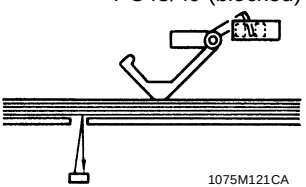
- A paper empty detection in the 1st and 2nd Drawers is detected by 1st Drawer Paper Empty Sensor and 2nd Drawer Paper Empty Sensor, respectively.

(2) Inch Areas

- A paper empty detection in the 1st and 2nd Drawers is detected by 1st Drawer Paper Empty Sensor and 2nd Drawer Paper Empty Sensor, and 1st Drawer Paper Empty Key and 2nd Drawer Paper Empty Key, respectively.
- 1st/2nd Drawer Paper Empty Sensor detects a paper-empty condition at the time of the paper take-up. The copier considers that there is no paper loaded if the sensor is unblocked (H).
- 1st/2nd Drawer Paper Empty Key detects a paper-empty condition when the drawer is slid into the copier. The copier considers that there is no paper loaded if the board is unblocked (H).



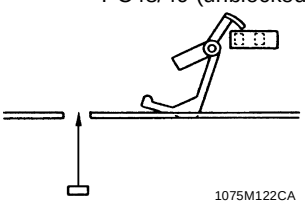
PC48/49 (blocked)



Paper Present

The paper stack raises the Paper Empty Lever which blocks (L) PC48/49.

PC48/49 (unblocked)



Paper not Present

The Paper Empty Lever drops into the cutout in the Paper Lifting Plate and the light blocking plate of the empty lever clears PC48/49 (H).

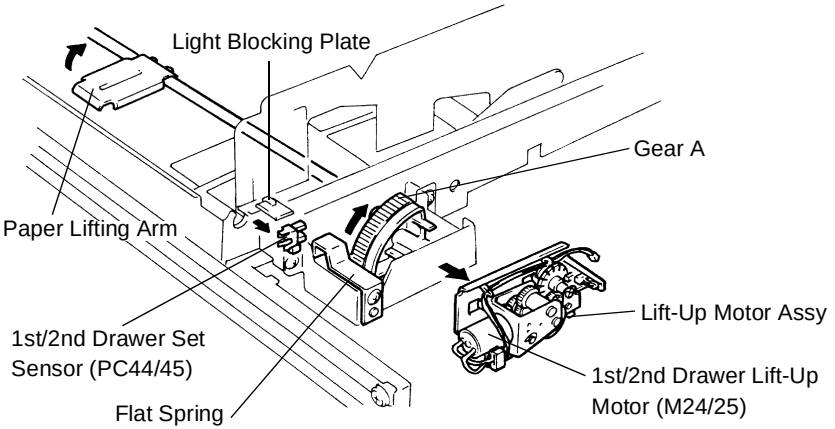
	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC48	PJ15F-8B	H	L	H-23
PC49	PJ14F-8B	H	L	G-23
PWB-E1	PJ5A-1A	L	H	A~B-22~23
PWB-E2	PJ5A-3A	L	H	C~D-22~23

1155SBM1203A

12-3. Paper Lifting/Lowering Mechanism

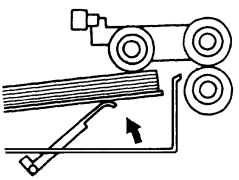
1) Metric Areas

- When the drawer is slid into the copier, the flat spring at the rear of the drawer raises the Lift-Up Motor Assy and, as a result, Gear A on the Paper Lifting Arm shaft meshes with the Lift-Up Motor Assy gear.
- At this time, 1st/2nd Drawer Set Sensor is blocked (L) and, 1 sec. thereafter, 1st/2nd Drawer Lift-Up Motor is energized.
- When 1st/2nd Drawer Lift-Up Motor is energized, it turns the Paper Lifting Arm, thus raising the paper stack so it is pressed against the Paper Take-Up Roll.



1075M109AA

Paper Stack Lifting



4425M005AA

1st/2nd Drawer Lift-Up Motor is energized causing the paper stack to be raised. (Paper lifting is started.).

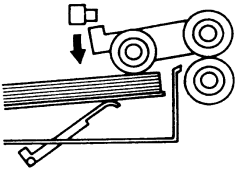
↓

The paper causes the light blocking plate of the Paper Take-Up Roll Assy to block 1st/2nd Drawer Lift-Up Sensor (L).

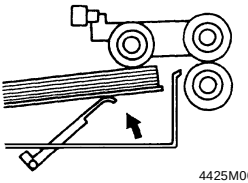
↓

1st/2nd Drawer Lift-Up Motor is deenergized. (Paper lifting is completed.)

During Copy Cycle



4425M006AA



4425M005AA

Paper is consumed as copies are made.
↓
As the Paper Take-Up Roll lowers, 1st/2nd Drawer Lift-Up Sensor is unblocked (H).
↓
1st/2nd Drawer Lift-Up Motor is energized to raise the paper stack, thus blocking the 1st/2nd Drawer Lift-Up Sensor (L).
↓
1st/2nd Drawer Lift-Up Motor is deenergized.

Note: Repeating these operations keeps constant the pressure between the Paper Take-Up Roll and paper regardless of the amount of paper still available for use.

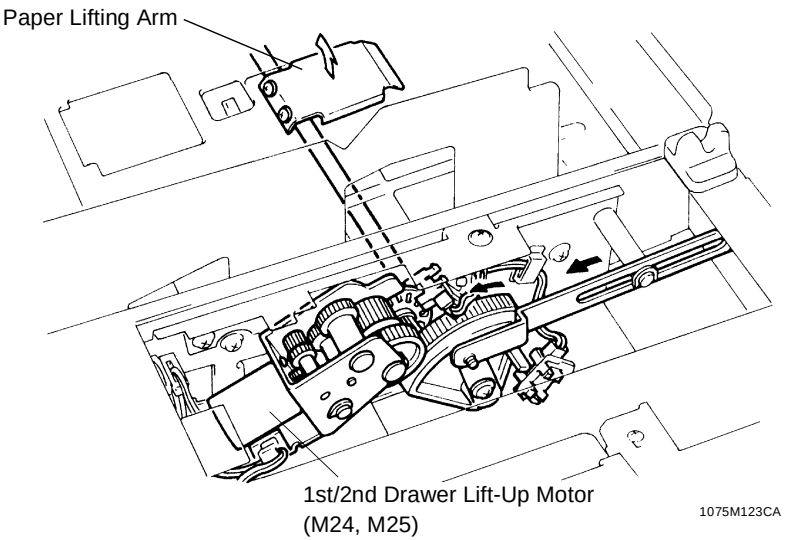
	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC40	PJ15F-8A	H	L	H-22
PC41	PJ14F-8A	H	L	G-22

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M24	PJ3F-1,2	L	H	H-19
M25	PJ3F-3,4	L	H	H-19

2) Inch Areas

● When the drawer is slid into the copier and, if 1st/2nd Drawer Paper Empty Sensor and 1st/2nd Drawer Paper Empty Key are blocked (L), any of the following operations will energize 1st/2nd Drawer Lift-Up Motor to turn forward, thus raising the paper stack.

Press 1st/2nd Drawer Paper Descent Key UN7/8.	Load originals on the Duplexing Document Feeder.
Turn ON Power Switch S1.	Place a paper stack on the Multi Bypass Table.
Open and close a door.	Slide the Sorter away from, and back to, the copier.
Raise and lower the Duplexing Document Feeder.	Press any key on the control panel.



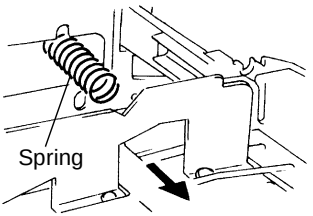
Paper Stack Lifting & **During Copy Cycle**

● See 1) Metric Areas operation.

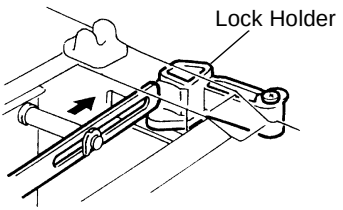
1155SBM1204A

12-4. Paper Stack Lowering/Drawer Locking Mechanism (Inch Areas)

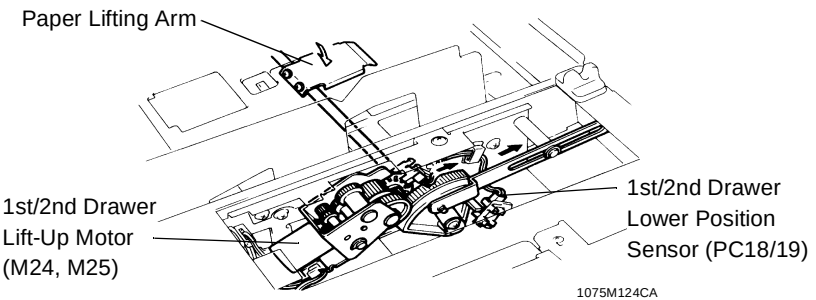
- When the Paper Descent Key is pressed or the drawer runs out of paper during a copy cycle, the Lift-Up Motor is energized to turn backward to lower the Paper Lifting Plate.
- The Paper Lifting Plate is at its lower limit position when the segment gear mounted on the same shaft as the Paper Lifting Arm blocks 1st/2nd Drawer Lower Position Sensor (L).
- When the Paper Descent Key is pressed, Lift-Up Motor continues turning backward even after the 1st/2nd Drawer Lower Position Sensor has been blocked and is deenergized when the 1st/2nd Drawer Lower Position Sensor is unblocked (H), the blocking plate passing through the sensor. This unlocks the drawer and the drawer is pushed approx. 70 mm out to the front by the spring placed in the rear of the copier.
- After the drawer has been unlocked, Lift-Up Motor starts turning forward and is deenergized when the 1st/2nd Drawer Lower Position Sensor is blocked (L).
- The drawer is locked in position by the lock holder inside the copier when it is slid all the way into the copier.



1075M126CA



1075M125CA



1075M124CA

	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC18	PJ5A-8B	H	L	A~B-24
PC19	PJ5A-6B	H	L	C-24

12-5. Paper Level Detection

- The amount of paper still available for use, or the paper level, of the 1st and 2nd Drawer is detected by 1st/2nd Drawer Lift-Up Motor Pulse Sensor and a pulse disk.
- The pulse disk is mounted on the shaft of the intermediary gear that transmits drive from the Lift-Up Motor. The speed of the Lift-Up Motor is known by counting the number of pulses.

When Drawer is Slid in

Counting of the number of pulses is started when the Lift-Up Motor is energized (to turn forward) and continues until Lift-Up Motor Pulse Sensor is blocked (L). The total number of pulses is translated into the amount of paper which is shown on the Touch Panel as a graphic marker in units of 50 sheets of paper.

During Copy Cycle

As the paper is consumed and the top level of the paper stack lowers, the Lift-Up Motor is energized (to turn forward) to raise the paper stack. During this time, Lift-Up Motor Pulse Sensor detects pulses and that pulse count is accumulated. When the count reaches 50 sheets of paper, one segment of the paper level indicator on the Touch Panel goes out.

*Paper Level Indicator

- 1 to 50 sheets

1134M058AA

- 50 to 200 sheets

1134M059AA

- 200 to 350 sheets

1134M060AA

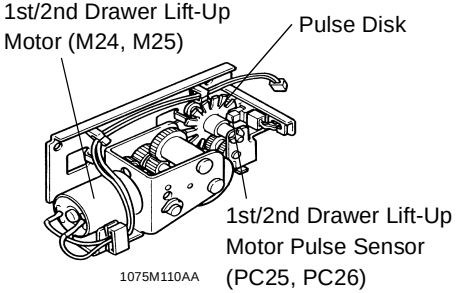
- 350 to 500 sheets

1134M061AA

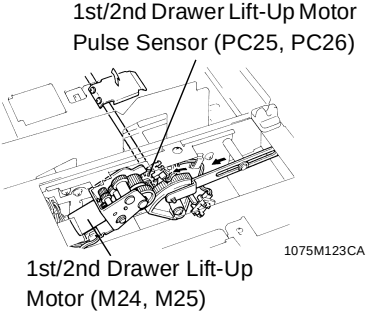
- 500 sheets up

1134M062AA

Metric Area



Inch Area

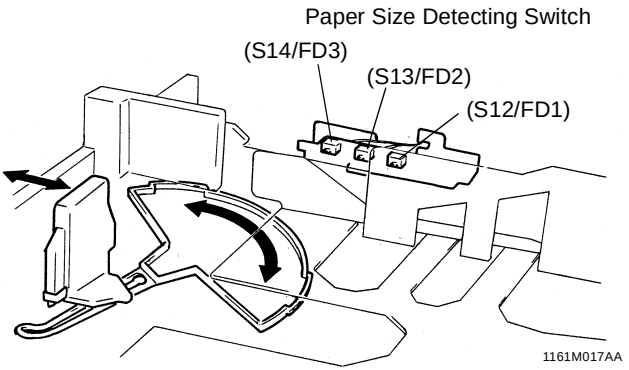


	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC25	PJ5A-1A	H	L	A-26
PC26	PJ5A-8B	H	L	A-26

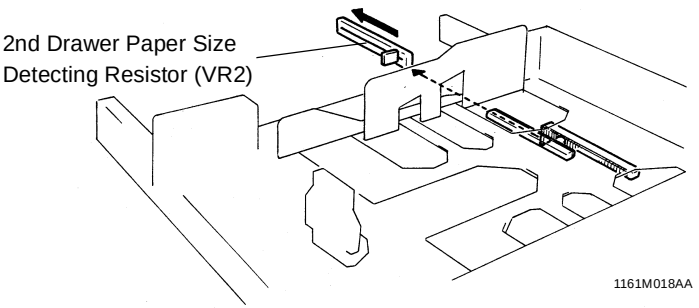
12-6. Universal Tray (2nd Drawer) Paper Size Detection

- The 2nd Drawer is a Universal Tray that automatically detects the size of the paper loaded in it. Both the length (in the feeding direction) and width (in the crosswise direction) of the paper are detected and the copier CPU determines the paper size based on the combination of the two readings. The width of FLS and other sizes (13" or 14" in the feeding direction) should, however, be set using the Tech. Rep. Choice function.
- The paper length (in the feeding direction) is detected by Paper Size Detecting Switch which are actuated or deactuated by the lever moved in phase with the Trailing Edge Stop.
- The paper width (in the crosswise direction) is detected by 2nd Drawer Paper Size Detecting Resistor mounted directly under the drawer, to the rear, beside the right rail. The resistance of Detecting Resistor is varied as the rack of the Edge Guide for the 2nd Drawer pushes the resistor.

= Size Detection in Feeding Direction =



= Side Detection in Crosswise Direction =



<Reference> To compensate for part-to-part variations of Detecting Resistor, be sure to run the FD operation of “Function” available from the Tech. Rep. mode whenever the Detecting Resistor has been replaced or removed and reinstalled, or upon memory clear.

● Detectable Paper Sizes and ON/OFF Combinations of Paper Size Detecting Switches

Paper Size Name	Inch Equivalent	Width x Length (mm)	Paper Size Detecting Switches			
			Length			Width
			S12	S13	S14	VR2
A5L (Invoice L)*2	(5-1/2"×8-1/2")	148×210 (140×216)	–	❍	–	Voltage across resistors Greater (4.23V)
B5L	–	182×257	❍	–	–	
B5C	–	257×182	❍	❍	❍	
A4L	–	210×297	–	–	–	
A4C	–	297×210	–	❍	–	
B4L	–	257×364	–	❍	❍	
A3L	–	297×420	❍	❍	–	
Quarto C	10"×8"	254×203	–	❍	–	
G.Letter L	8"×10-1/2"	203×267	❍	–	–	
G.Letter C	10-1/2"×8"	267×203	–	❍	–	
Folio*	8-1/4"×13"	210×330	–	–	❍	
Letter L	8-1/2"×11"	216×279	❍	–	–	
Letter C	11"×8-1/2"	279×216	–	❍	–	
Legal*	8-1/2"×14"	216×356	–	❍	❍	
11×14	11"×14"	279×356	–	❍	❍	
Ledger	11"×17"	279×432	❍	❍	–	
Comp Form	11"×15"	279×381	❍	❍	❍	
Korean FLS L	–	192×268	❍	–	–	
FLS*	8"×13"	203×330	–	–	❍	
G. Legal L*	8-1/2"×13"	216×330	–	–	❍	Smaller (0.54V)
Folio (Eu.)*	8-1/4"×14"	210×356	–	❍	❍	

Switch operation ❍ : ON – : OFF, Voltage values are standard.

* It is necessary to set the width in the crosswise direction using the Tech. Rep. Choice function.

*2 Metric areas: A5L
Inch areas: Invoice L

● Those sizes that have the same ON/OFF combinations are to be determined with the resistance value of VR.

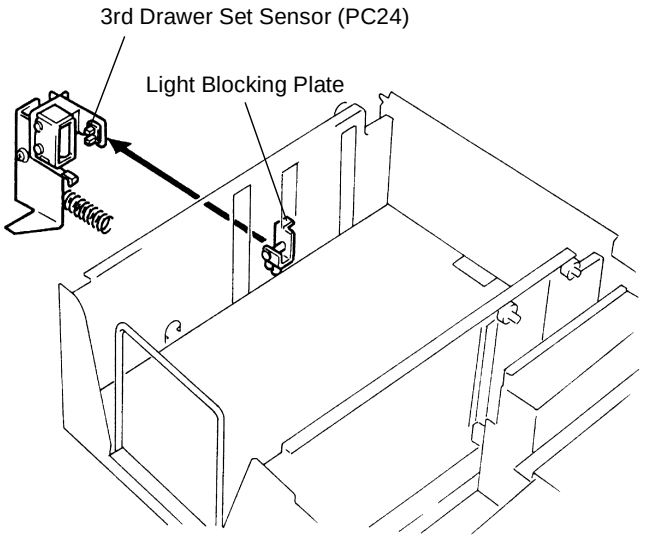
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
S12	PJ11F-9	L	H	D-20
S13	PJ11F-7	L	H	D-20
S14	PJ11F-5	L	H	D-20

	CONTROL SIGNAL	SMALL RESISTANCE	LARGE RESISTANCE	WIRING DIAGRAM
VR2	PJ8A-8B	Analog input		E-32

1155SBM1207A

12-7. 3rd Drawer in Position Detection

● When the 3rd Drawer is slid into the copier, the light blocking plate in the rear of the drawer blocks 3rd Drawer Set Sensor (L) and the copier determines that the 3rd Drawer has been slid into it.



1075M111AA

	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC24	PJ8F-2	H	L	F-19

12-8. 3rd Drawer Paper Empty Detection

Main Tray

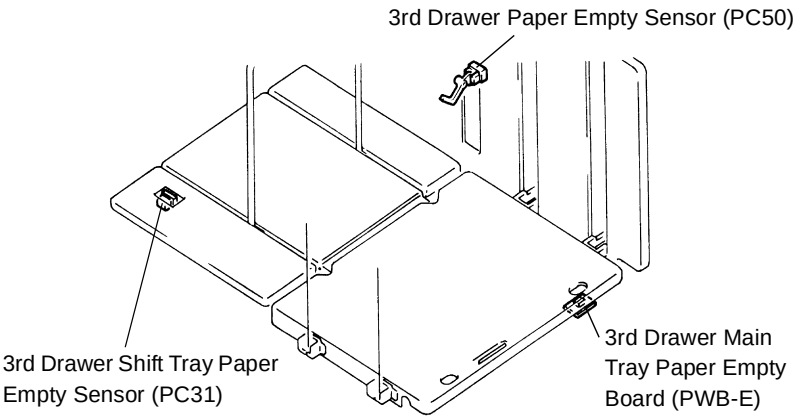
- A paper-empty condition of the Main Tray is detected by 3rd Drawer Main Tray Paper Empty Board and 3rd Drawer Paper Empty Sensor.
- 3rd Drawer Main Tray Paper Empty Board detects a paper-empty condition at a timing when the 3rd Drawer is slid into the copier (i.e., when the Main Tray is at its lower limit position). The copier notes a paper-empty condition if the 3rd Drawer Main Tray Paper Empty Board is unblocked (H).
- 3rd Drawer Paper Empty Sensor works when paper is taken up from the Main Tray (i.e., when the Main Tray is at its upper limit position). The copier considers that the Main Tray has run out of paper if the 3rd Drawer Paper Empty Sensor is unblocked (H).

Shift Tray

- A paper-empty condition of the Shift Tray is detected by 3rd Drawer Shift Tray Paper Empty Sensor.
- The copier considers that the Shift Tray has run out of paper when 3rd Drawer Shift Tray Paper Empty Sensor is unblocked (H).

<Copying Operation at Main/Shift Tray Paper Empty>

* When a paper-empty condition is detected in the Main Tray during a multi copy cycle, the paper stack on the Shift Tray, if available, is transferred to the Main Tray to continue the copy cycle. If paper is not loaded on the Shift Tray but paper of the same size and direction is loaded in any other paper source, that paper source is automatically selected for an uninterrupted copy cycle.
* When a paper-empty condition is detected in both the Main and Shift Tray during a multi copy cycle, and if no paper of the same size and direction is available, a paper-empty message is given on the Touch Panel and the copy cycle is terminated.


3rd Drawer Paper Empty Sensor (PC50)
3rd Drawer Shift Tray Paper Empty Sensor (PC31)
3rd Drawer Main Tray Paper Empty Board (PWB-E)
4425M120AA

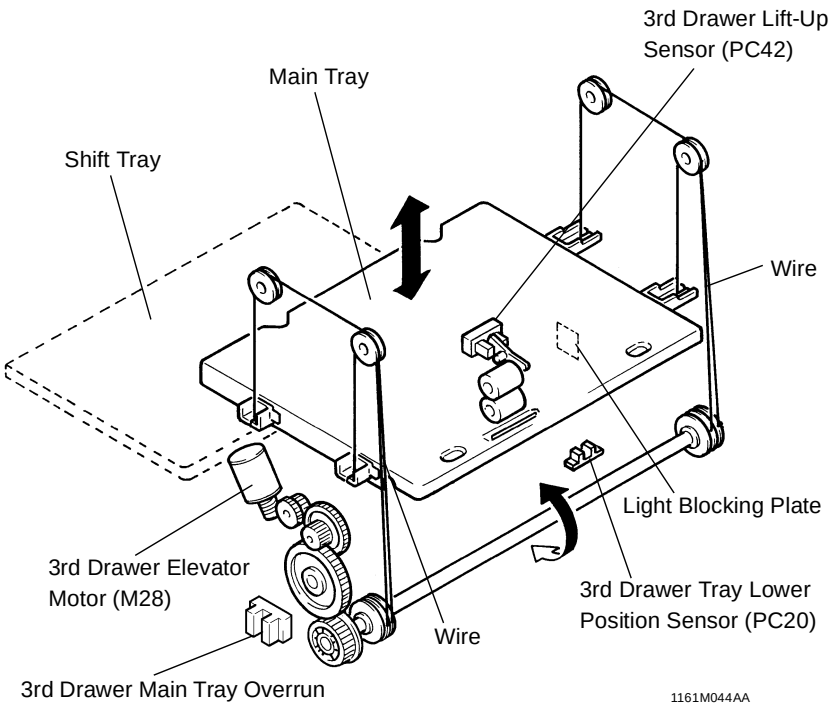
	CONTROL SIGNAL	BLOCKED	UNBLOCKED	WIRING DIAGRAM
PWB-E	PJ2H-6A	H	L	E~F-25

	CONTROL SIGNAL	BLOCKED	UNBLOCKED	WIRING DIAGRAM
PC50	PJ13F-8B	L	H	F-23
PC31	PJ2H-4A	L	H	H-25

12-9. Main Tray Paper Stack Lifting/Lowering Mechanism

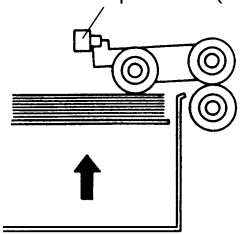
◆ Main Tray Paper Stack Lifting/Lowering Mechanism

- The Main Tray is raised and lowered by 3rd Drawer Elevator Motor. When the 3rd Drawer Elevator Motor turns forward or backward, the wires at the front and rear are wound around, or fed off, the pulleys to raise or lower the Main Tray.
- Detection of Main Tray at its upper limit position : When the Main Tray is raised, the paper stack on the tray presses upward the Paper Take-Up Roll Assy which blocks 3rd Drawer Lift-Up Sensor (L). The low signal indicates that the Main Tray has reached its upper limit position.
- Detection of Main Tray at its lower limit position : As the Main Tray is lowered, the light blocking plate mounted on a gear of the Main Tray drive mechanism blocks (L) 3rd Drawer Main Tray Overrun Detecting Sensor.



When Drawer is Slid in

3rd Drawer Lift-Up Sensor (PC42)

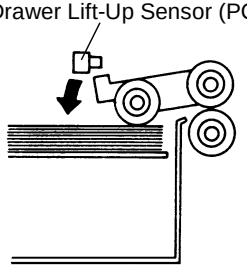


4425M114AA

3rd Drawer Set Sensor is blocked(L).
↓ 1sec.
3rd Drawer Paper Descent Key is pressed.
(For inch areas)
↓
3rd Drawer Elevator Motor is energized to raise the Main Tray.
↓
The paper stack causes the light blocking plate of the Paper Take-Up Roll Assy to block the 3rd Drawer Lift-Up Sensor (L).
↓ 15msec.
3rd Drawer Elevator Motor is deenergized.

During Copy Cycle

3rd Drawer Lift-Up Sensor (PC42)



4425M113AA

Paper is consumed as copies are made.
↓
The Paper Take-Up Roll gradually lowers, unblocking the 3rd Drawer Lift-Up Sensor (H).
↓
3rd Drawer Elevator Motor is energized to raise the Main Tray, causing the paper stack to block the 3rd Drawer Lift-Up Sensor (L).

* Repeating these operations keeps constant the pressure between the paper stack and Paper Take-Up Roll regardless of the amount of paper still available for use.

◆ **Main Tray Up/Down Motion Conditions**

● The Main Tray is Raised When:

(1) The 3rd Drawer is slid into the copier with its Main Tray loaded with paper. (For metric areas)

(2) Any of the following operations is performed with the 3rd Drawer slid into the copier and with the Main Tray loaded with paper. (For inch areas)

Press 3rd Drawer Paper Descent Key UN9.	Load originals on the Duplexing Document Feeder.
Turn ON Power Switch S1.	Place a paper stack on the Multi Bypass Table.
Open and close a door.	Slide the Sorter away from, and back to, the copier.
Raise and lower the Duplexing Document Feeder.	Press any key on the control panel.

(3) The paper stack on the Shift Tray is transferred to the Main Tray.

(4) 3rd Drawer Lift-Up Sensor is unblocked (H) during a paper take-up sequence with the Main Tray loaded with paper (during top level correction).

● The Main Tray is Lowered When:

(1) 3rd Drawer Paper Empty Sensor is unblocked (H) during a paper take-up sequence.

(2) 3rd Drawer Paper Descent Key is pressed.

(3) Power Switch is turned ON when the Main Tray is located at a position other than its upper and lower limits.

◆ **Main Tray Stop Conditions**

● While the Main Tray is going up:

(1) 3rd Drawer Lift-Up Sensor is blocked (L).

(2) 3rd Drawer Lift-Up Sensor is blocked (L) during top level correction.

● While the Main Tray is going down:

(1) 3rd Drawer Tray Lower Position Sensor is blocked (L).

(2) 3rd Drawer Main Tray Overrun Detecting Sensor is blocked (L).

	CONTROL SIGNAL	FORWARD	BACKWARD	WIRING DIAGRAM
M28	PJ2H-6,7B	L	H	I-25~26

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
UN9	PJ2H-10A	L	H	F-25

	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC42	PJ13F-8A	L	H	F-22
PC20	PJ2H-9A	L	H	G-25
PC21	PJ2H-2A	L	H	F-25
PC24	PJ8F-2	L	H	F-19

12-10. 3rd Drawer Paper Level Detecting Mechanism

● The amount of paper still available for use, or the paper level, of the Main Tray is detected using 3rd Drawer Elevator Motor Pulse Sensor and a pulse disk which detect the speed of 3rd Drawer Elevator Motor.

When 3rd Drawer is Slid in

Counting of the number of pulses is started when the 3rd Drawer Elevator Motor is energized (to turn forward) and continues until the 3rd Drawer Paper Lift-Up Sensor is blocked (L).
The total number of pulses is translated into the amount of paper which is shown on the Touch Panel as a graphic marker in units of 50 sheets of paper.

During Copy Cycle

As the paper is consumed and the top level of the paper stack lowers, the 3rd Drawer Elevator Motor is energized (to turn forward) to raise the paper stack. During this time, the Scaner Reference Position Sensor detects pulses and that pulse count is accumulated. When the count reaches 50 sheets of paper, one segment of the paper level indicator on the Touch Panel goes out.

NOTE: If there is paper on the Shift Tray, the copier detects that 500 sheets or more of paper are left in the 3rd Drawer as long as paper is left on the Main Tray.

*Paper Level Indicator

● 1 to 50 sheets

1134M058AA

● 50 to 200 sheets

1134M059AA

● 200 to 350 sheets

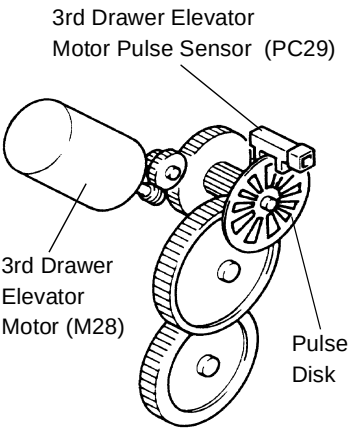
1134M060AA

● 350 to 500 sheets

1134M061AA

● 500 sheets up

1134M062AA



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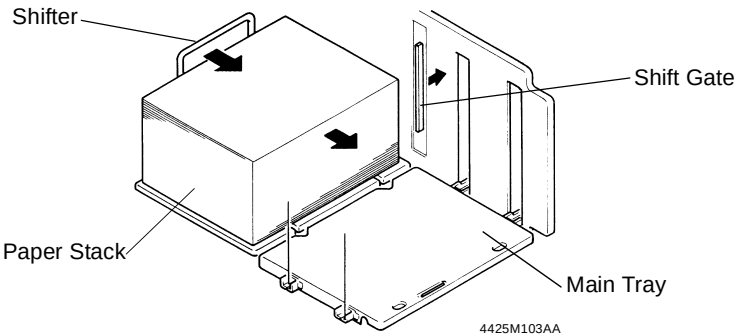
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M28	PJ2H-6,7B	L	H	I-25~26

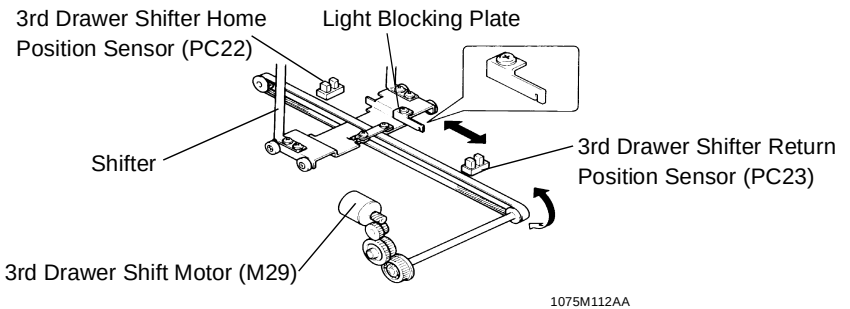
	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC29	PJ2H-5A	L	H	H-25

12-11. Shifter Drive Mechanism

- The Shifter is driven by 3rd Drawer Shift Motor via a belt. As the 3rd Drawer Shift Motor is energized, the Shifter transfers the paper stack on the Shift Tray to the Main Tray.
- The Shifter is at its home position when 3rd Drawer Shifter Home Position Sensor is blocked (L). This is before the Shifter moves the paper stack to the Main Tray.
- The return position of the Shifter is where the light blocking plate (*1) on the bottom of the Shifter blocks (L), unblocks (H), and then blocks (L) again 3rd Drawer Shifter Return Position Sensor. This is when the Shifter has just transferred the paper stack onto the Main Tray.

  (*1): The light blocking plate is shaped as shown below (having a cutout in it). As it moves past the 3rd Drawer Shifter Return Position Sensor, it produces the sensor outputs as shown.




3rd Drawer Shifter Home Position Sensor (PC22)
Light Blocking Plate
Shifter
3rd Drawer Shifter Return Position Sensor (PC23)
3rd Drawer Shift Motor (M29)
1075M112AA

	CONTROL SIGNAL	FORWARD	BACKWARD	WIRING DIAGRAM
M29	PJ2H-4,5B	L	H	H~I-25~26

	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC22	PJ2H-8A	H	L	G-25
PC23	PJ2H-7A	H	L	F~G-25

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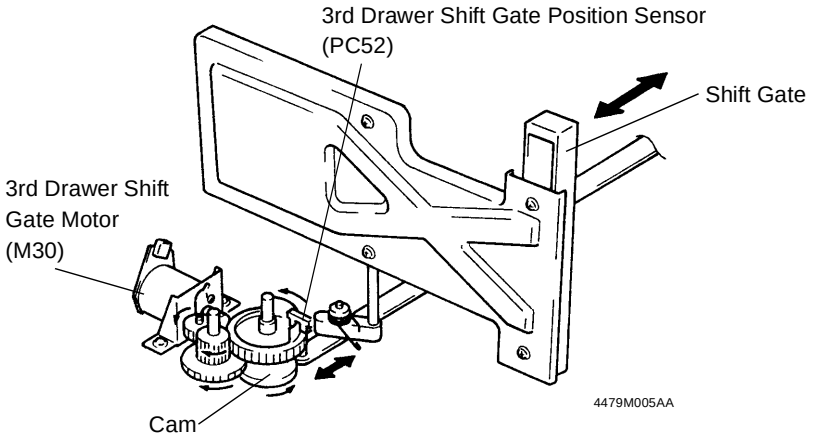
12-12. Shift Gate Drive Mechanism

- The Shift Gate serves as a wall to block the paper on the Shift Tray from moving toward the Main Tray.
- When the paper stack on the Shift Tray needs to be moved onto the Main Tray, the Shift Gate is retracted.
- The drive from 3rd Drawer Shift Gate Motor turns the cam to move the Shift Gate to the front or rear. 3rd Drawer Shift Gate Position Sensor detects where the Shift Gate is located.



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M30	PJ2H-2,3B	L	H	H-25~26

	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC52	PJ2H-1B	L	H	H-25~26

1155SBM1213A

12-13. 3rd Drawer Lock/Release

Lock

- When the 3rd Drawer is slid into the copier, the locking pawl in the rear of the copier is hooked onto the locking shaft in the rear of the 3rd Drawer.

Release

Press 3rd Drawer Paper Descent Key.

↓

The Main Tray starts lowering and blocks 3rd Drawer Tray Lower Position Sensor (L).

↓ 0.5sec.

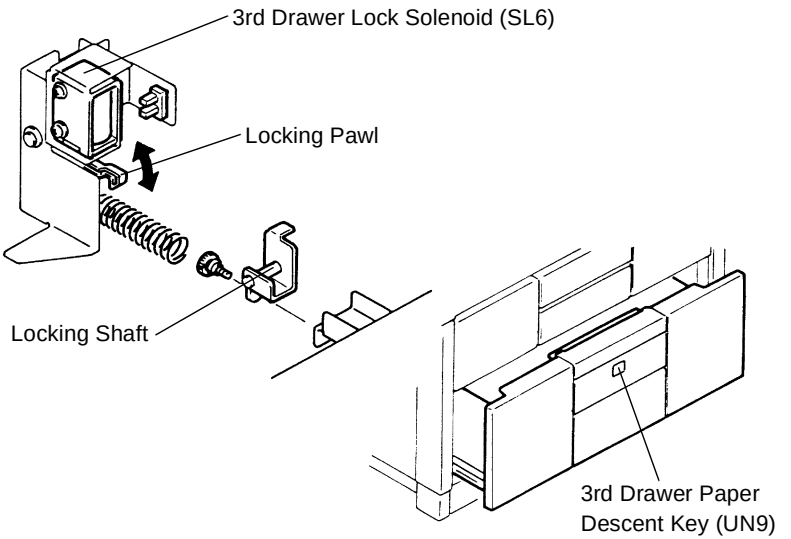
3rd Drawer Lock Solenoid is energized and remains so for 0.5 sec.

↓

The locking pawl in the rear of the copier is disengaged from the locking shaft in the rear of the 3rd Drawer.

↓

The tension of the spring in the rear of the copier pushes the 3rd Drawer approx. 70 mm out to the front.



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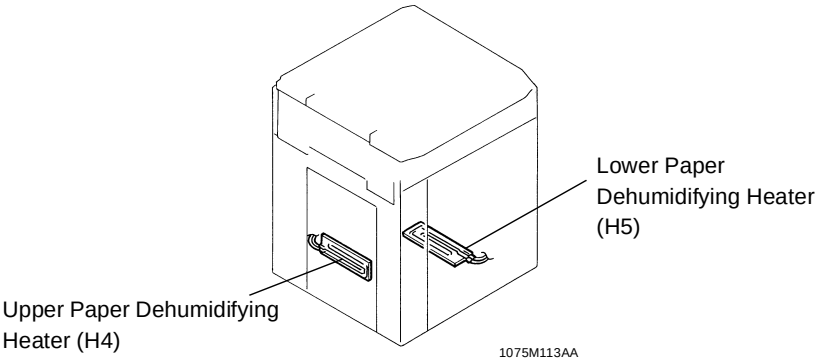
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
SL6	PJ7F-2	L	H	F-19
UN9	PJ2H-10A	L	H	F-25

1155SBM1214A

12-14. Paper Dehumidifying Heaters (Except Europe, U.S.A., and Canada)

- When the paper in the drawer grows damp, its electrical resistance decreases, which degrades image transfer efficiency. As a result, void areas and other image problems occur on the copy.
- Upper and Lower Paper Dehumidifying Heaters are provided to prevent this problem.



◆ Upper/Lower Paper Dehumidifying Heater ON/OFF Conditions

- ON Conditions
  Upper and Lower Paper Dehumidifying Heaters are turned ON when Paper Dehumidifying Switch is turned ON with the power cord plugged in.
- OFF Conditions
  Upper and Lower Paper Dehumidifying Heaters are OFF when Power Switch S1 is turned ON.

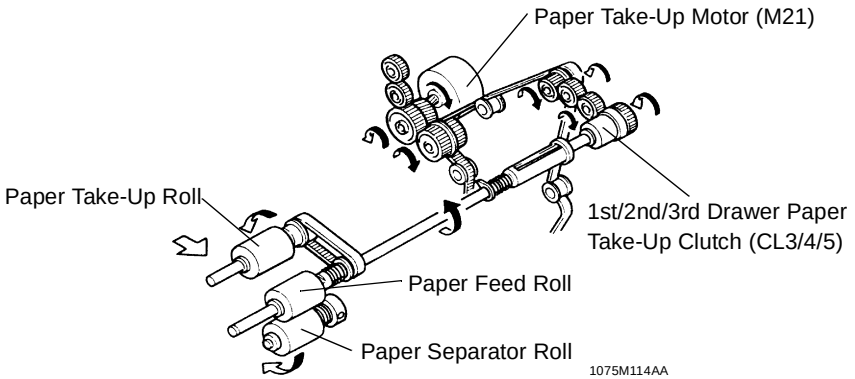
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
S8	PJ9C-3,4B	L	H	C~D-26
H4	PJ12C-5	L	H	B-26
H5	PJ12C-5	L	H	B-26

1155SBM1215A

12-15. Drawer Paper Take-Up Mechanism

<Paper Take-Up Mechanism>

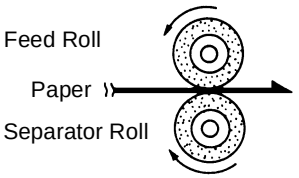
● Drive for the paper take-up sequence is transmitted from Paper Take-Up Motor when 1st/2nd/3rd Drawer Paper Take-Up Clutch is energized.



<Paper Separating Mechanism>

- The paper separating mechanism employs a torque limiter to ensure that only the top sheet of paper is fed in by separating the second sheet of paper from the top one.
- This is accomplished by the difference in friction coefficient between the Feed and Separator Rolls.

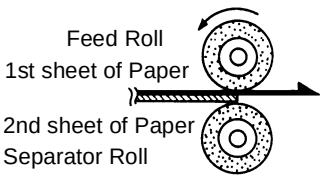
<Normal Feeding>



4425M012AA

- When only one sheet of paper is taken up, the friction coefficient on the top side of the paper is equal to that on the underside. Driven by the Feed Roll, the paper drives the Separator Roll, allowing the paper to be fed into the Vertical Transport Section.

<Double Feeding>



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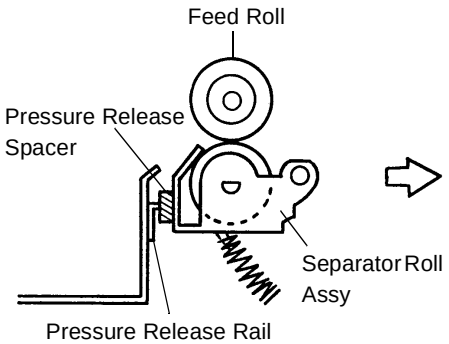
- Since the friction coefficient between the second sheet of paper and the Separator Roll is greater than that between the first and second sheets of paper, the Separator Roll is not driven and holds the second sheet of paper. The Feed Roll thus feeds the first sheet of paper into the Vertical Transport Section.

<Paper Pressure Release Mechanism> (Except 3rd Drawer)

- If the drawer is pulled out when a sheet of paper is pinched between the Feed and Separator Rolls, that sheet of paper is left inside the copier and it becomes difficult to remove it.
- This copier is therefore provided with a mechanism that releases the Separator Roll from the Feed Roll when the drawer is slid out of the copier.
- The paper pressure release mechanism consists of the Pressure Release Spacer on the Separator Roll Assy and the Pressure Release Rail fitted to the upper part of the Drawer Rail. When the drawer is slid out, the Pressure Release Rail presses down the Pressure Release Spacer, which results in the Separator Roll being disengaged from the Feed Roll.



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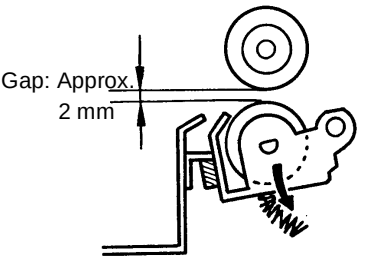

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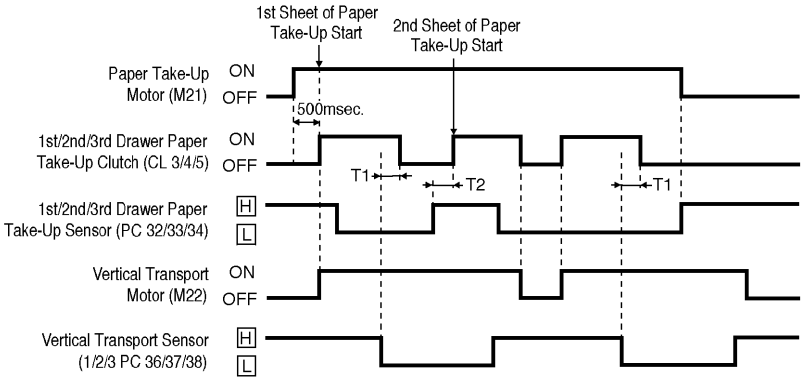
<Paper Take-Up Motor M21 Control>

- Paper Take-Up Motor is a DC motor* and controlled by the Paper Take-Up Motor Remote signal output from Master Board.

◆ Control Timing (Multi copy cycle for 2 copies)



T1: 75msec. T2: 6msec.

1155T25MCA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M21	PJ2F-2	L	H	H-19
CL3	PJ15F-2B	L	H	D-1
CL4	PJ14F-2B	L	H	C-1
CL5	PJ13F-2B	L	H	F-1

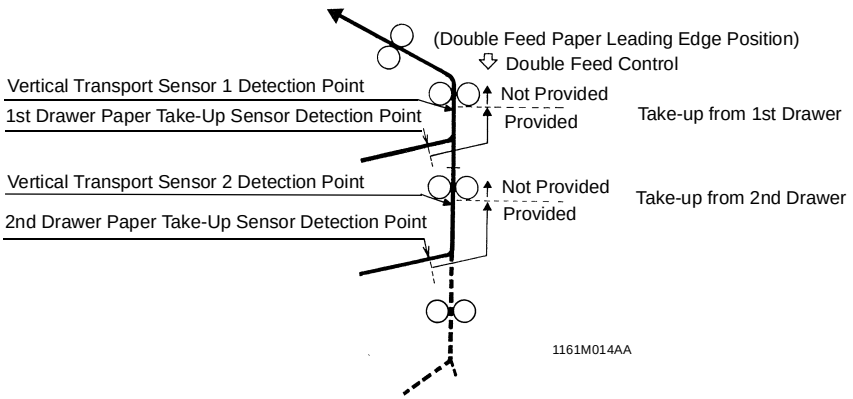
	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC32	PJ15F-2A	L	H	H-22
PC33	PJ14F-2A	L	H	G-22
PC34	PJ13F-2A	L	H	F-22

<Paper Take-Up Interval Control>

- The Paper Feed Roll and Separator Roll may sometimes fail to separate the subsequent sheet of paper properly and the leading edge of that paper may be ahead of the Feed and Separator Rolls inside the copier. If the paper take-up sequence for that paper is started in this condition, the distance between the preceding and the current sheet of paper will be shorter than normal, resulting in a misfeed.
- If the time it takes the paper to block (L) the paper take-up sensor after the paper take-up clutch has been energized is shorter than a predetermined time, the paper take-up clutch is temporarily deenergized; after a given period of time, it is energized again to provide a good interval between two paper take-ups. This is called the paper take-up interval control.

<Double Feed Control>

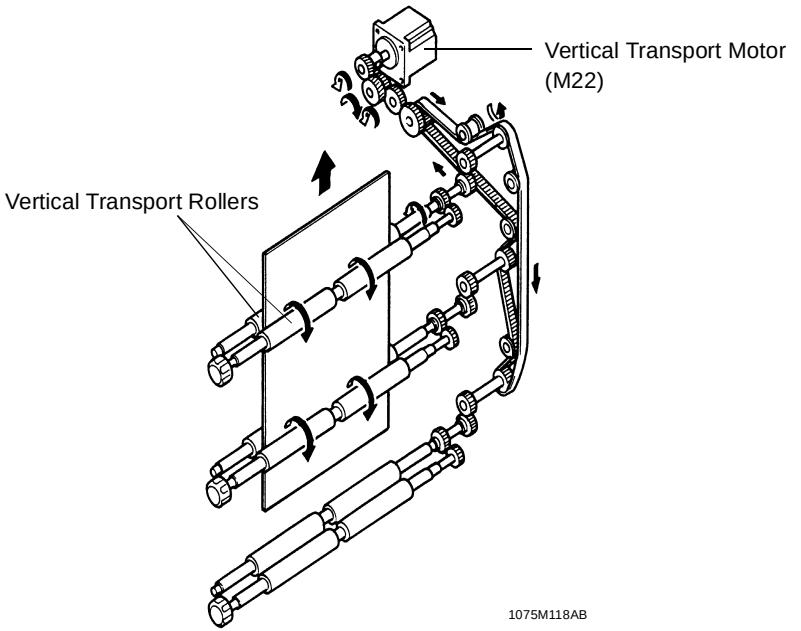
- Even if the Paper Take-Up Roll takes up two sheets of paper at one time, the double feed control uses the second sheet of paper for the next copy cycle without causing a paper misfeed. It eliminates a paper misfeed that would otherwise result when two sheets of paper are taken up at once.
- Is the second sheet of paper is stationary blocking the paper take-up sensor when the trailing edge of the first sheet of paper moves past the vertical transport sensor (unblocked), the copier determines that it is a double feed condition and provides double feed control.
- If, however, the second sheet of paper has reached the Vertical Transport Roller, the double feed control is not provided since the paper is fed further into the copier by the Vertical Transport Roller. This could result in a paper misfeed or the second sheet of paper being fed through the copier with the first one.



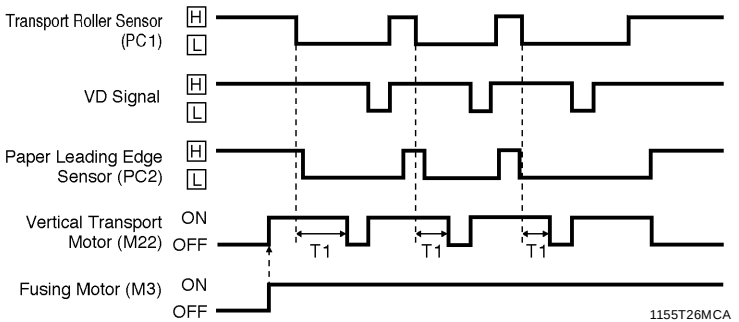
1155SBM1216A

12-16. Vertical Transport Drive Mechanism

● Each Vertical Transport Roller is driven by Vertical Transport Motor.



◆ Timing Chart



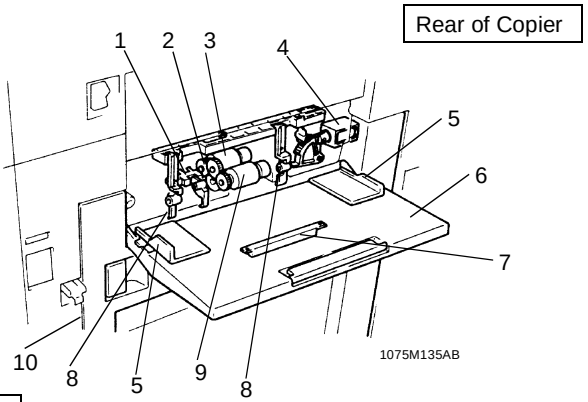
T1: 62msec.

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M22	PJ17F-3~6	Pulse Output		D-7

12-17. Multi Bypass Table

1) Construction

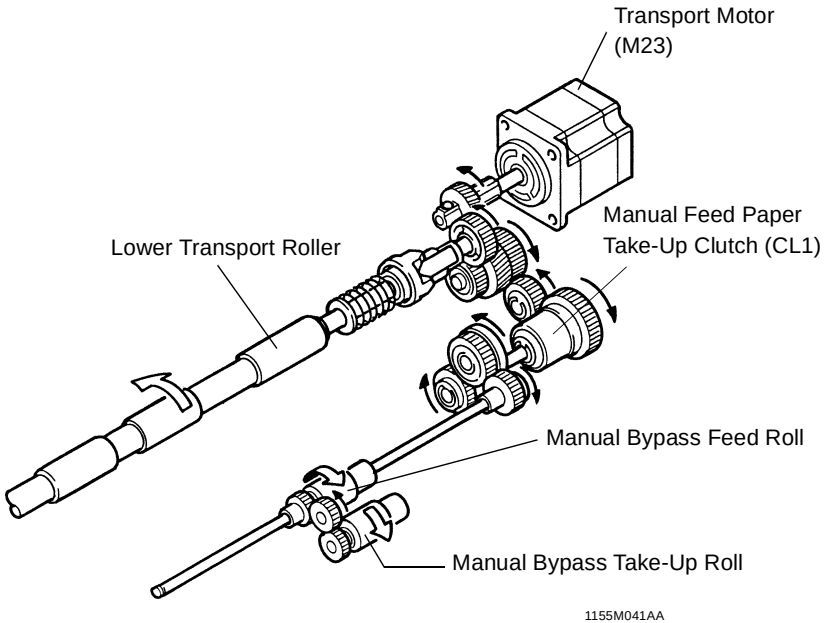
● The Multi Bypass Table consisting of the following parts is fitted to the Right Door of the copier.



1. Manual Feed Paper Empty Sensor PC6
2. Manual Bypass Separator Roll
3. Manual Bypass Feed Roll
4. Manual Feed Paper Pick-Up Solenoid SL1
5. Manual Bypass Edge Guides
6. Manual Bypass Table
7. Manual Feed Size Detecting Resistor VR1
8. Paper Stopper
9. Manual Bypass Take-Up Roll
10. Right Door

2) Manual Bypass Paper Take-Up Drive Mechanism

- Drive for paper take-up from the Multi Bypass Table is transmitted from Transport Motor via Manual Feed Paper Take-Up Clutch to the Manual Bypass Feed and Take-Up Rolls.
- Here is the drive train.

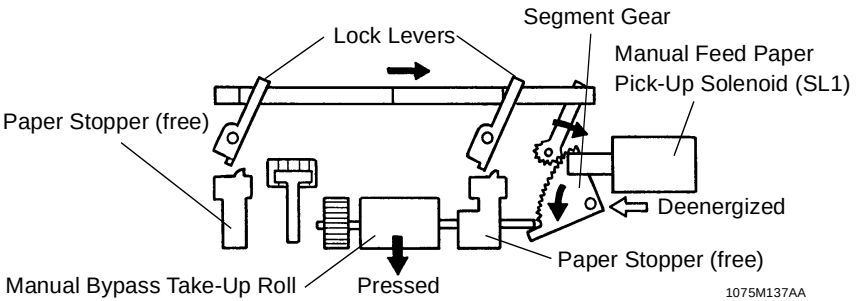


3) Manual Take-Up Roll Pressure Mechanism

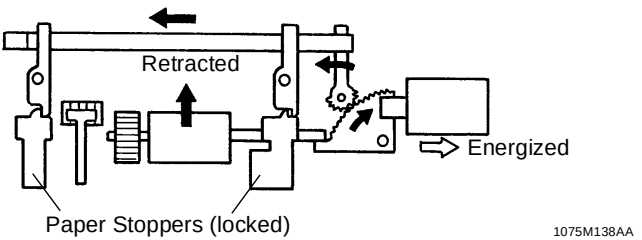
- The Manual Bypass Take-Up Roll is operated as follows when Manual Feed Paper Pick-Up Solenoid is energized and deenergized.
- The two Paper Stoppers, which block the leading edge of the paper stack loaded on the Multi Bypass Table, are also operated as follows as the Manual Feed Paper Pick-Up Solenoid is energized and deenergized.

	SL1	Take-Up Roll Position	Paper Stoppers
At take-up	Deenergized	Pressing paper	Free
At timings other than take-up	Energized	Retracted	Locked

<At Take-Up>



<At Timing Other Than Take-Up>



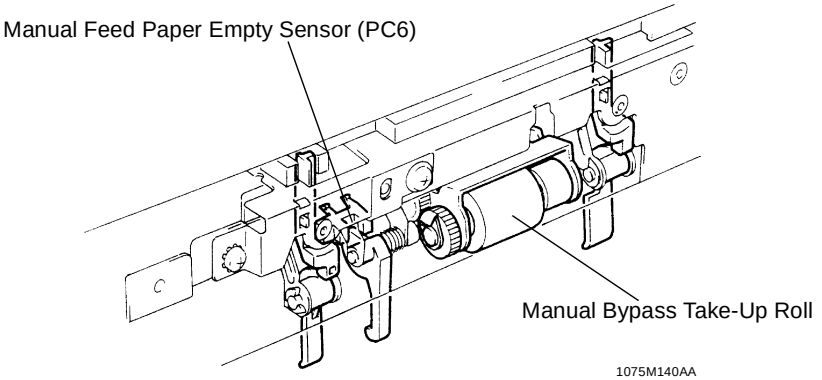
4) Paper Separating Mechanism

The paper separating mechanism ensures that only the top sheet of paper is fed in by separating the second sheet of paper from the top one. This is accomplished by the Torque Limiter fitted to the Separator Roll shaft which stops the Separator Roll when there is a change in friction between the Feed and Separator Rolls.

* For details of the paper separating mechanism, see “12-14. Drawer Paper Take-Up Mechanism”.

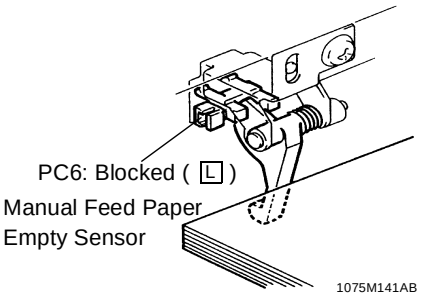
5) Manual Bypass Paper Empty Detection

● The Multi Bypass Table is equipped with Manual Feed Paper Empty Sensor which detects a sheet of paper on the Multi Bypass Table.



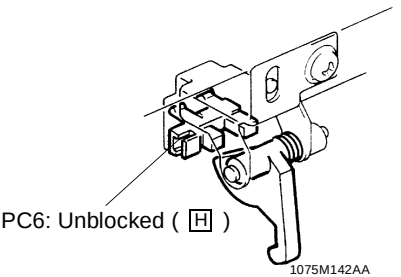
<When Paper is Placed>

● When paper is placed on the Multi Bypass Table, PC6 is blocked (L) as follows.



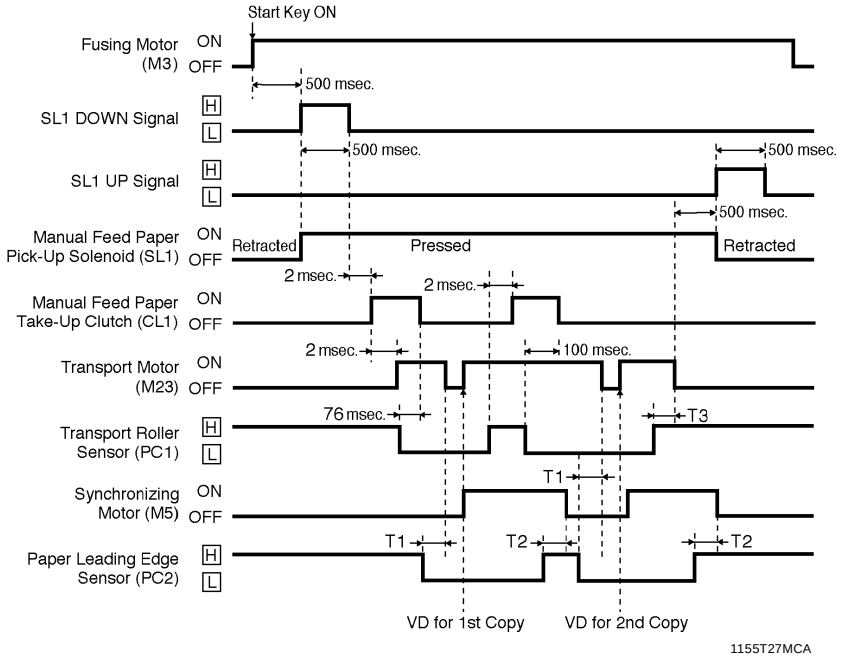
<When No Paper is Placed>

● When there is no paper on the Multi Bypass Table, PC28 is unblocked (H) as follows.



	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC6	PJ7A-9B	H	L	H-29

6) Manual Bypass Take-Up Control
<Multi Copy Cycle for 2 Copies>



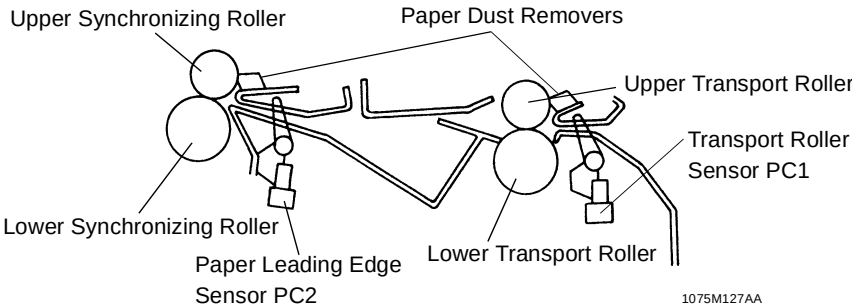
T1: 67msec. T2: 87msec. T3: 76msec.

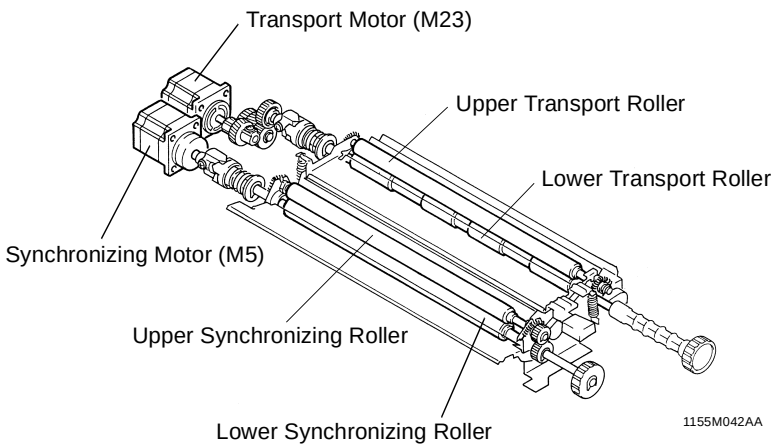
	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
CL1	PJ2A-2B	L	H	I-29~30
SL1 DOWN	PJ8A-2B	L	H	H-15
SL1 UP	PJ8A-1B	L	H	H-15

1155SBM1300A

13. TRANSPORT/SYNCHRONIZING ROLLERS UNIT

- The Transport/Synchronizing Rollers Unit can be removed as an assembly for easy serviceability.
- Each of the Transport and Synchronizing Rollers is driven by a stepping motor dedicated to it so that the paper is properly fed by the Transport Rollers and a loop is positively formed in the paper before the Synchronizing Rollers.
- The Transport/Synchronizing Rollers Unit is made of the following parts.

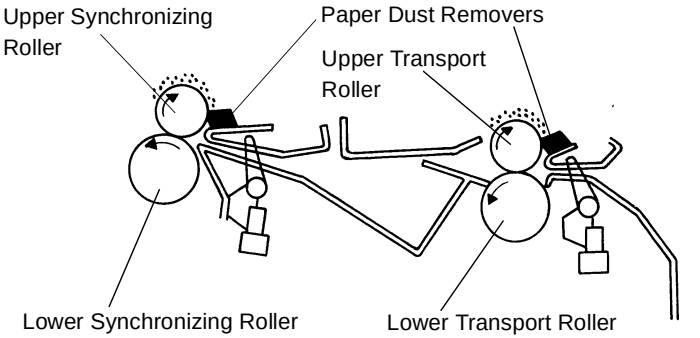




1155SBM1301A

13-1. Paper Dust Remover

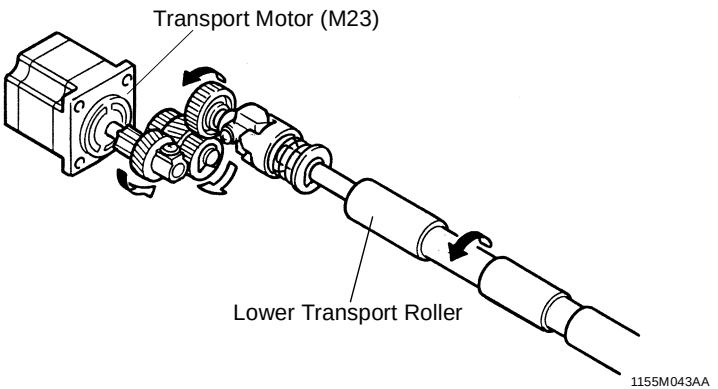
- The Upper Transport Roller and Upper Synchronizing Roller are each equipped with a Paper Dust Remover to prevent paper dust from sticking to the surface of the PC Drum.
- Since these two rollers are covered with a vinyl tubing, triboelectric charging occurs as the rollers turn in contact with the Paper Dust Remover.
- As paper is fed through the rollers, the charges on the tubing attract paper dust from the paper. The dust is then transferred onto the Paper Dust Remover.



1155SBM1302A

13-2. Transport Roller Drive Mechanism

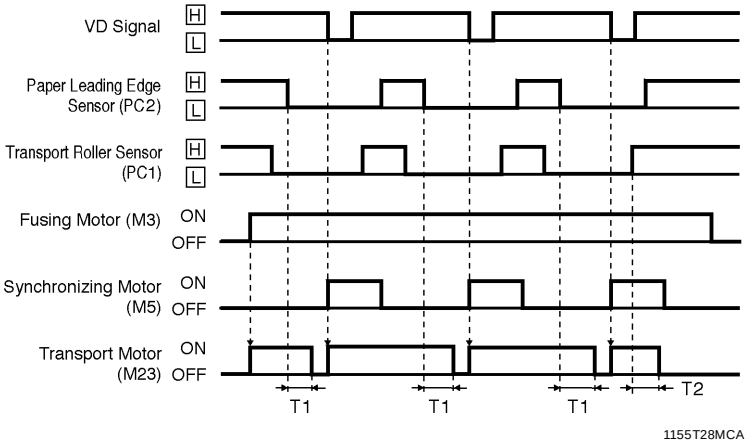
- The Upper Transport Roller is driven by the Lower Transport Roller.
- The Lower Transport Roller is driven by Transport Motor through a gear train.



13-3. Transport Roller Drive Control

- The Transport Rollers are driven by Transport Motor.
- Transport Motor, a stepping motor, is controlled by energizing the four internal coils using pulse signals output from Drawer S/P Board, as controlled by Master Board.

<Multi Copy Cycle for 3 Copies>



T1: 67msec. T2: 76msec.

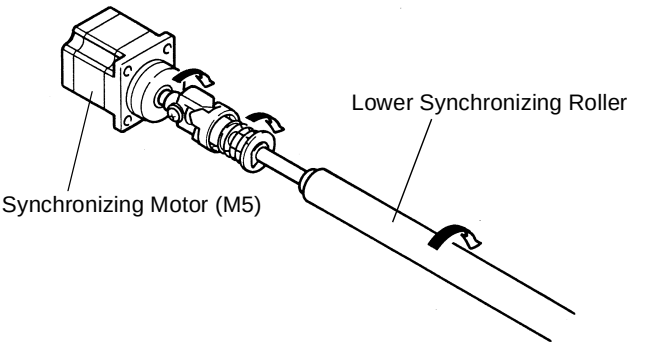
	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC2	PJ3A-2B	H	L	B-7

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M23	PJ16F-3~6	Pulse Output		D-7

1155SBM1304A

13-4. Synchronizing Roller Drive Mechanism

- The Upper Synchronizing Roller is driven by the Lower Synchronizing Roller.
- The Lower Synchronizing Roller is driven by Synchronizing Motor through a gear train.

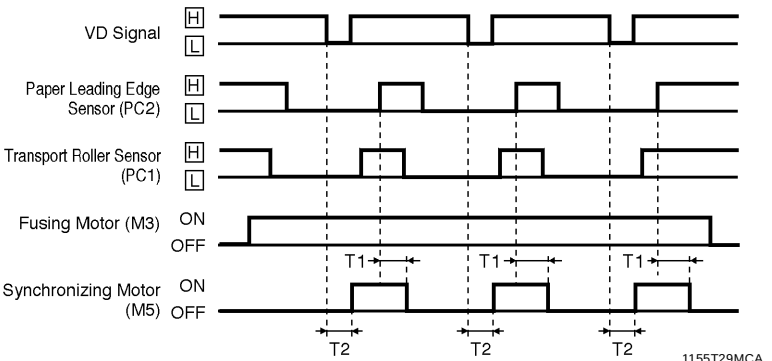


1155M044AA

1155SBM1305A

13-5. Synchronizing Roller Drive Control

- Synchronizing Motor, a stepping motor, is controlled by energizing the four internal coils using pulse signals output through the control by Master Board.



1155T29MCA

T1: 62msec.
164msec.

	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC2	PJ3A-2B	H	L	B-7

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M5	PJ9A-2~5B	Pulse Output		D~E-7

14. IMAGE TRANSFER AND PAPER SEPARATION

Image Transfer

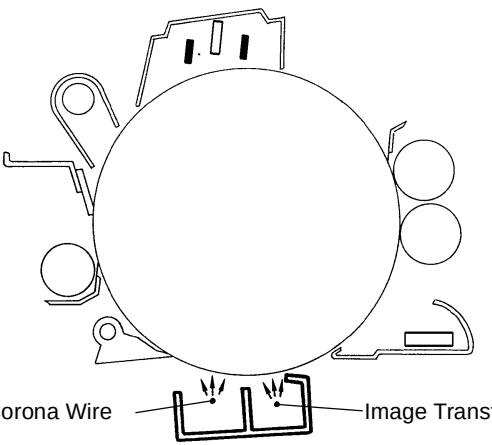
The Image Transfer Corona applies a DC negative corona emission to the underside of the paper thereby attracting the positively charged toner onto the surface of the paper to form a visible, developed image of the original.

Paper Separation

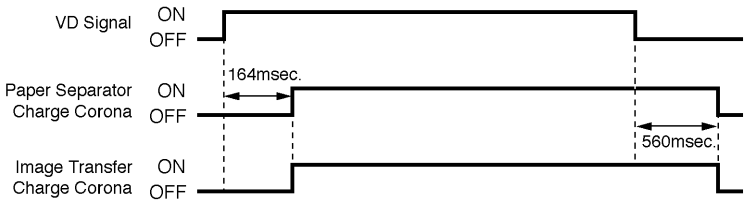
The Paper Separator Corona showers the underside of the paper with both positive and negative charges so that the paper can be easily separated from the PC Drum. In addition, two Paper Separator Fingers physically peel the paper off the surface of the PC Drum. (For details, see PAPER SEPARATOR FINGERS.)

The Image Transfer/Paper Separator Coronas Unit is provided with a Pre-Image Transfer Guide Plate that determines the angle at which the paper comes into contact with the PC Drum and keeps an optimum distance between the paper and the PC Drum so that the image may be properly transferred onto the paper.

- There is a mechanism provided that automatically cleans the corona wires at a given timing, thereby preventing uneven charging caused by a dirty wire.



1155M014AA



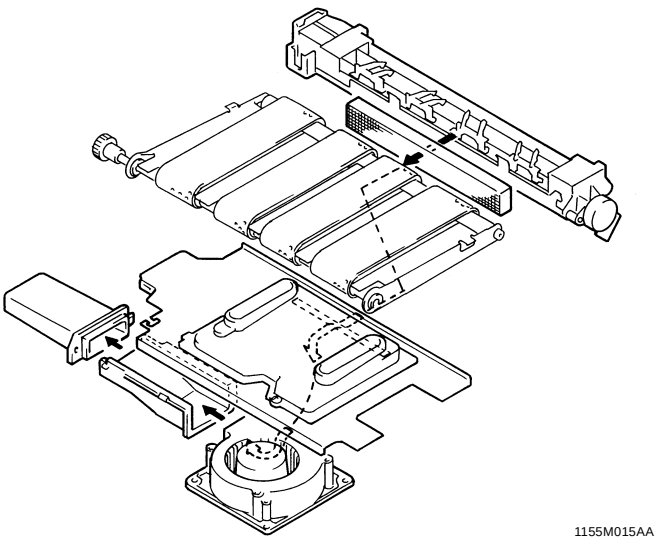
1155T30MCA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
HV2 I.T. Corona	PJ3A-5A	L	H	B-7
HV2 P.S. Corona	PJ3A-2A	L	H	B-7

1155SBM1401A

14-1. Ozone Filter

● Ozone Produced by the Image Transfer/Paper Separator Coronas is absorbed by the Ozone Filter from the air being drawn out of the copier by Suction Fan Motor.



1155M015AA

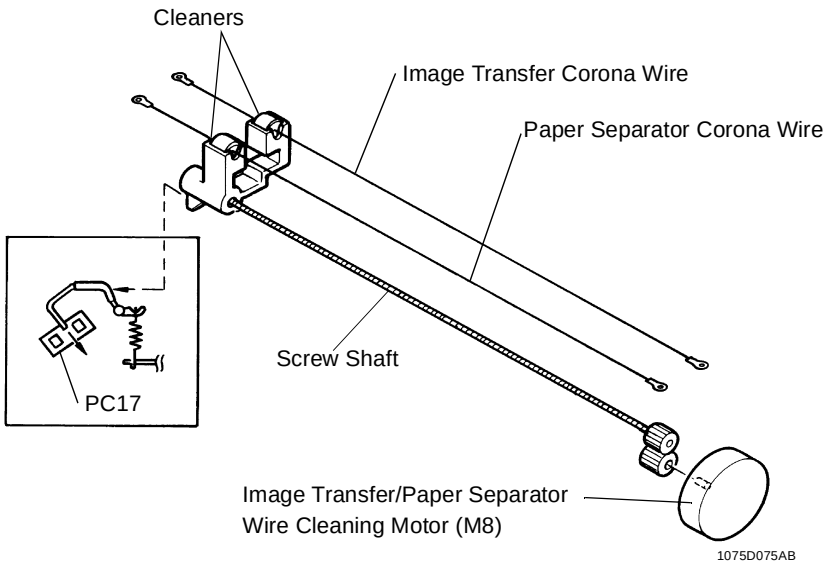
1155SBM1402A

14-2. Image Transfer/Paper Separator Corona Wires Cleaning Mechanism

The Image Transfer/Paper Separator Coronas are provided with a mechanism that automatically cleans its corona wires. It effectively removes from the wires any toner and dust particles which would otherwise cause uneven charging, white streaks on copies, and charge leak.

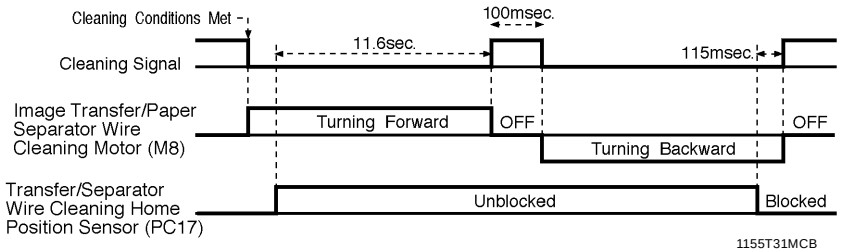
<Mechanism>

- When Image Transfer/Paper Separator Charge Wire Cleaning Motor is energized, its drive is transmitted to the Screw Shaft. This in turn moves the two Cleaners mounted on the Screw Shaft.
- Image Transfer/Paper Separator Wire Cleaning Motor is a two-phase stepping motor. The Cleaners are detected at their home position (which is the reference position for the cleaning motion) by Transfer/Separator Wire Cleaner Home Position Sensor.
- The Cleaners make one round trip per each cleaning cycle.



<Control>

- The Image Transfer/Paper Separator corona wires are automatically cleaned under the following conditions. The cleaning function is, however, disabled if the “Charge Wire Cleaning” function of “System Input” available from the Tech. Rep. mode has been set to “Off”.
  (1) A period of 500 msec. has elapsed after Power Switch has been turned ON.
  (2) The number of copies made exceeds 10K after the Power Switch has been turned ON and 10 minutes elapse after the last copy cycle has been completed.
  (3) An Image Transfer/Paper Separator Coronas malfunction, which has been detected, is reset.
  (4) A misfeed/malfunction, which has been detected, is reset with a sheet of paper remaining at the area near the Image Transfer/Paper Separator Corona.

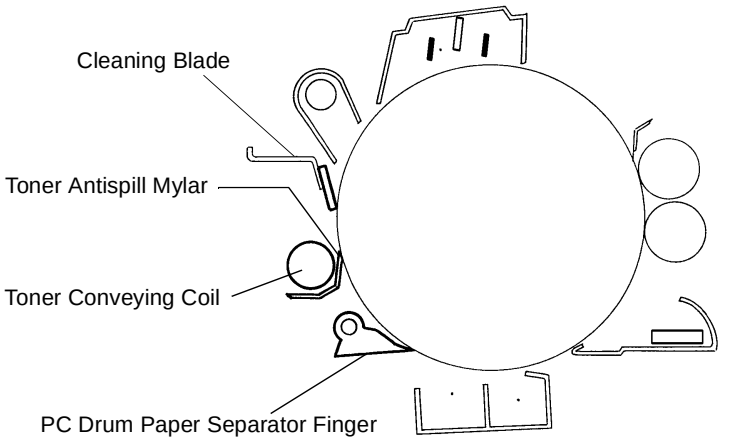


	CONTROL SIGNAL	FORWARD	BACKWARD	WIRING DIAGRAM
M8	PJ3A-9~12A	Pulse Output		C-7

	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC17	PJ3A-4B	H	L	C-7

15. CLEANING UNIT

- The Cleaning Blade is pressed tightly against the surface of the PC Drum and scrapes off any toner remaining on the surface after image transfer and paper separation have been completed. The scraped-off toner falls into the Toner Conveying Coil and is conveyed by that Coil to the Toner Chute and into the Toner Collecting Bottle at the back of the copier.
- The Blade Tension Spring ensures that the Cleaning Blade is pressed against the PC Drum surface at a given constant pressure.
- The Toner Antispill Mylar prevents the scraped-off toner from falling onto the areas inside the copier, ensuring all scraped-off toner falls on the Toner Conveying Coil.
- The PC Drum Paper Separator Fingers join forces with the Paper Separator Corona to positively separate the paper from the surface of the PC Drum.

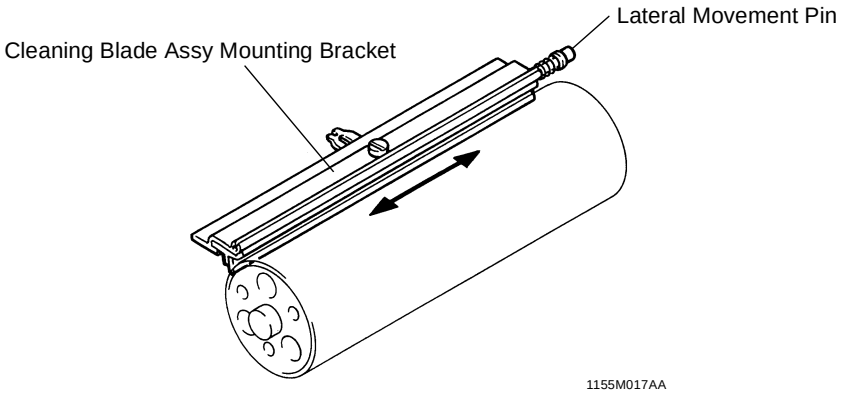


1155M016AA

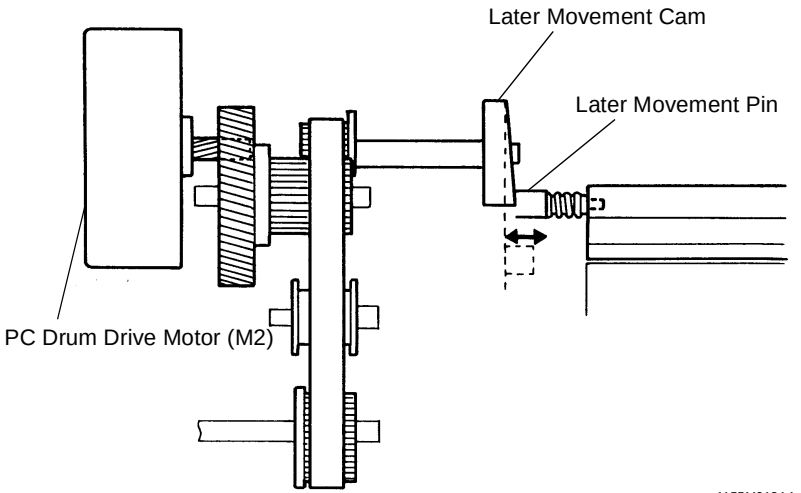
1155SBM1501A

15-1. Cleaning Blade Moving Mechanism

- The Cleaning Blade is moved back and forth while the PC Drum is turning to ensure that all residual toner is scraped cleanly off the surface of the PC Drum, thereby preventing the PC Drum as well as Cleaning Blade from deteriorating.
- Drive from PC Drum Drive Motor turns the Lateral Movement Cam. The Lateral Movement Pin on the end of the Cleaning Blade Assy Mounting Bracket is pushed by the cam, which results in the Cleaning Blade being moved back and forth.



1155M017AA

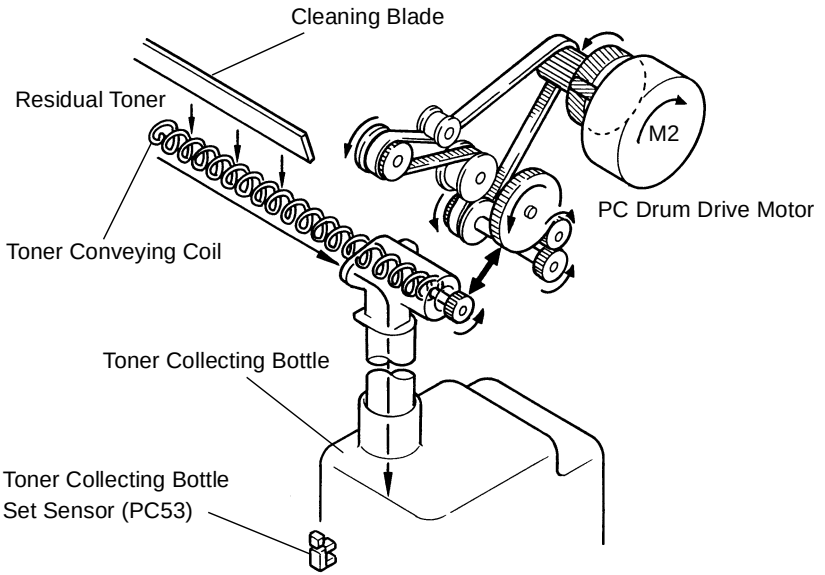


1155M018AA

1155SBM1502A

15-2. Toner Conveying/Collecting Mechanism

- The toner which has been scraped off the surface of the PC Drum by the Cleaning Blade is conveyed to the rear of the copier by the Toner Conveying Coil and dropped into the Toner Collecting Bottle through the Toner Chute.
- The Toner Conveying Coil is driven by PC Drum Drive Motor.
- The Toner Collecting Bottle has a capacity of approx. 13 liters.
- Toner Collecting Bottle Set Sensor is provided to detect that the Toner Collecting Bottle is installed so that the copier can inhibit the initiation of a copy cycle if the Toner Collecting Bottle is missing.



1155M019AA

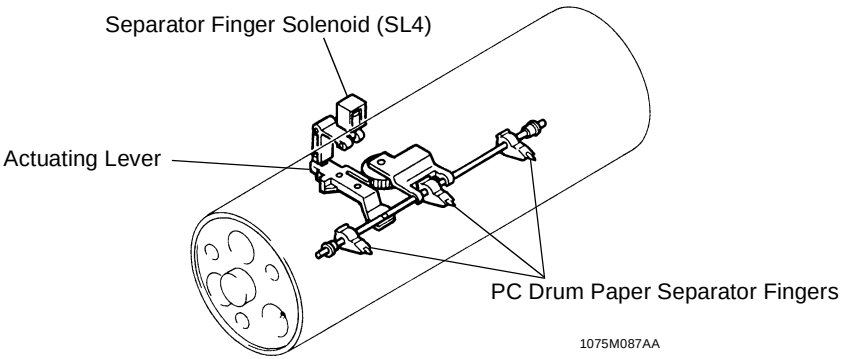
	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC53	PJ11F-2	H	L	G-32

1155SBM1503A

15-3. PC Drum Paper Separator Fingers Moving Mechanism

<Mechanism>

- The PC Drum Paper Separator Fingers, together with the Paper Separator Corona, ensure good separation of paper from the PC Drum after image transfer has taken place.
- The Paper Separator Fingers are made of metal with their tips ground to minimize damage to the surface of the PC Drum.
- There are three Paper Separator Fingers provided to cope with any paper size.
- The Paper Separator Fingers are pressed against the surface of the PC Drum to positively separate paper from it. Further, to minimize damage to the PC Drum, the Fingers are moved back and forth.

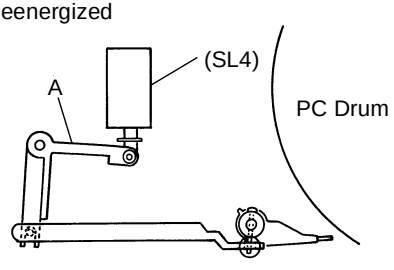


	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
SL4	PJ10A-8B	L	H	C-1

= Finger Pressing Motion =

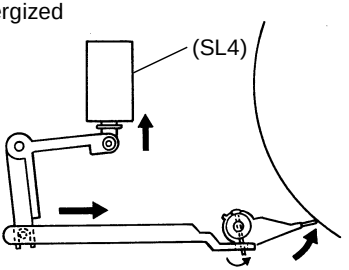
- The PC Drum Paper Separator Fingers are pressed against the surface of the PC Drum by Separator Finger Solenoid as it is energized at a timing to separate paper from the surface of the PC Drum.
- When the Separator Finger Solenoid is energized, part A of the Actuating Lever is raised. This moves the lower part of the lever in the direction of the arrow. Since the Finger Shaft is connected to the Actuating Lever at B, the Paper Separator Fingers are turned counterclockwise. This brings the fingers into contact with the surface of the PC Drum. The pressure the Paper Separator Fingers exert against the surface of the PC Drum is maintained at approx. 1g.
- When the Separator Finger Solenoid is deenergized, the Actuating Lever is lowered by the tension of the spring. This results in the Finger Shaft being turned clockwise, causing the Paper Separator Fingers to be moved away from the surface of the PC Drum.

When Separator Finger Solenoid SL4 is deenergized



1075M088AA

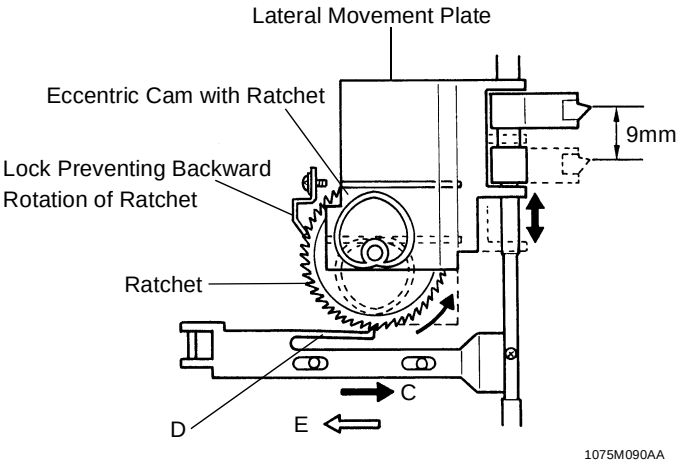
When Separator Finger Solenoid SL4 is energized



1075M089AA

= Finger Back-and-Forth Motion =

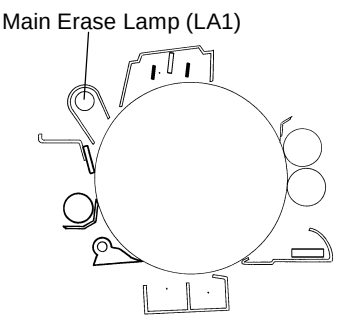
- The PC Drum Paper Separator Fingers are moved in the crosswise direction by the eccentric cam with ratchet when Separator Finger Solenoid is operated.
- When the Separator Finger Solenoid is energized, the Actuating Lever is moved in the direction of arrow C. At this time, pawl D moves over the ratchet one tooth, which is a given amount of rotary motion of the eccentric cam. When the Separator Finger Solenoid is deenergized, the Actuating Lever is returned to the original position (in the direction of arrow E) by the tension of the spring. As a result, pawl D moves over the ratchet one tooth back. (The ratchet is not turned backward as it is provided with a lock that prevents the ratchet from turning backward.)
- According to the profile of the eccentric cam, the Lateral Movement Plate is moved as the eccentric cam turns. This results in the Finger Shaft being moved back and forth over an approx. 9 mm distance. (One complete turn of the eccentric cam is equivalent to one round trip of the fingers.)



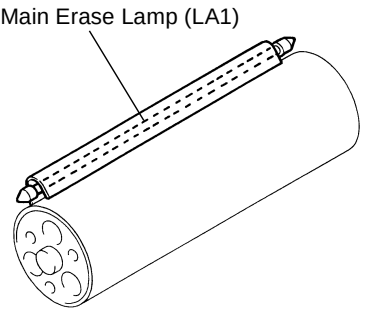
1155SBM1600A

16. MAIN ERASE LAMP

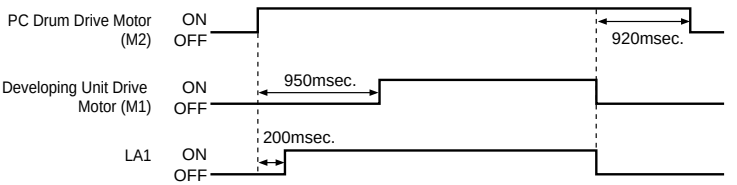
- Main Erase Lamp neutralizes any surface potential remaining on the surface of the PC Drum after cleaning.
- It consists of nine incandescent tungsten-filament lamps connected in a series inside a glass tube.



1155M016AA



1075M093AA

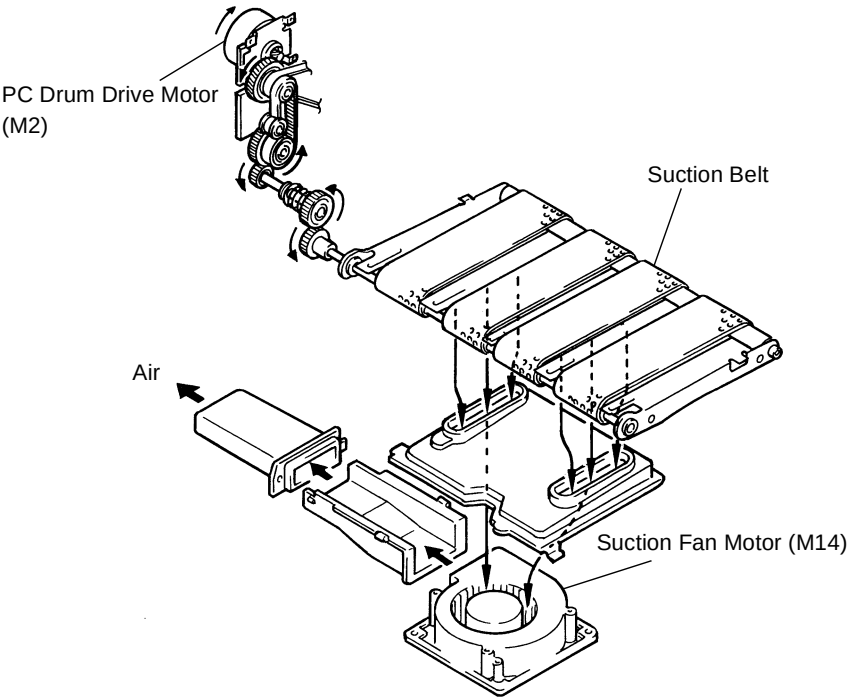


1155T32MCA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
LA1	PJ10A-10B	L	H	C-4~5

17. TRANSPORT SECTION

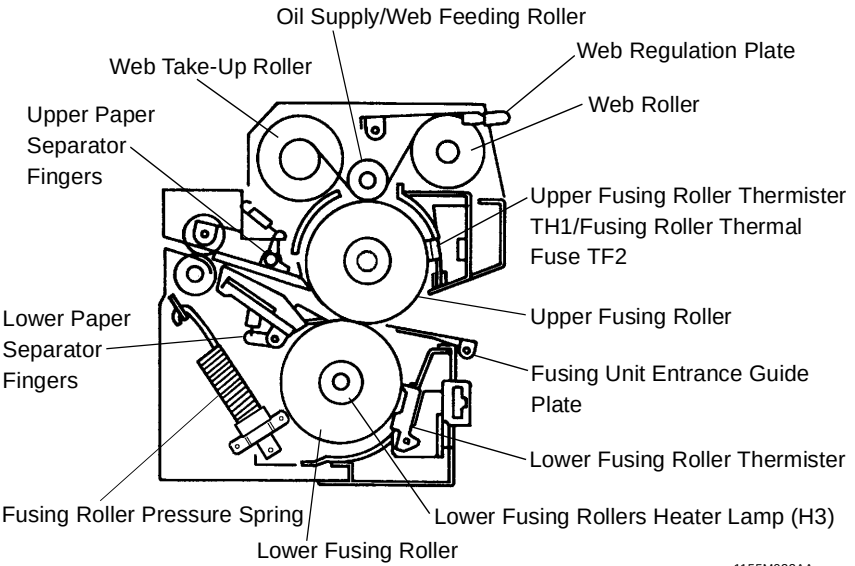
- Rotation of Suction Fan Motor results in the paper separated from the PC Drum being drawn onto the turning Suction Belts. As a result, the paper is smoothly carried to the Fusing Unit.
- The Suction Belts are turned by the Suction Belt Drive Roller which is driven by PC Drum Drive Motor.
- Four rubber belts are used as the Suction Belts. There are small holes in each belt to enhance the drawing power of the Suction Fan Motor. Further, each belt has a rough surface which prevents slippage during paper transport.



	CONTROL SIGNAL	HALF SPEED	FULL SPEED	WIRING DIAGRAM
M14	PJ3A-7B	H	L	B-8

18. FUSING UNIT

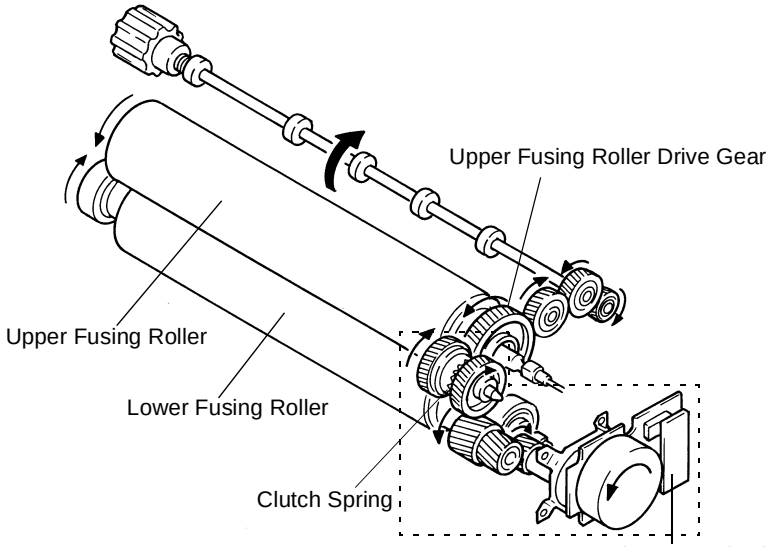
- The Fusing Unit fixes permanently the developed image to the paper by applying heat to the toner and paper. A given pressure is also applied between the Upper and Lower Fusing Rollers, thereby providing a certain width of area of contact between the two rollers. This offers a longer fusing time and, at the same time, helps toner to be fused into the paper easily.
- The Lower Fusing Roller is also provided with a heater lamp which heats the roller from the inside to ensure stabilized fusing performance. It also minimizes wrinkles and skewed feed that would occur due to variations in the roller's surface temperature during the early period after the power has been turned ON.



1155SBM1801A

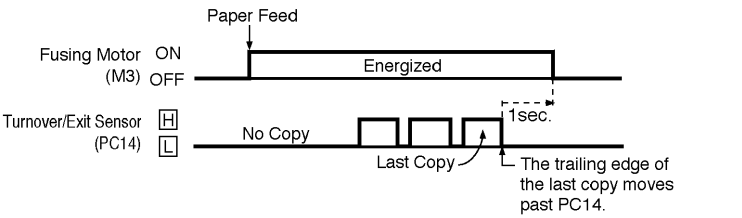
18-1. Drive for the Fusing Unit

● The Fusing Unit is driven by Fusing Motor fitted to the Fusing Drive Unit in the rear of the copier.



The gears enclosed by ⬚ are on the copier frame.

1155M023AA



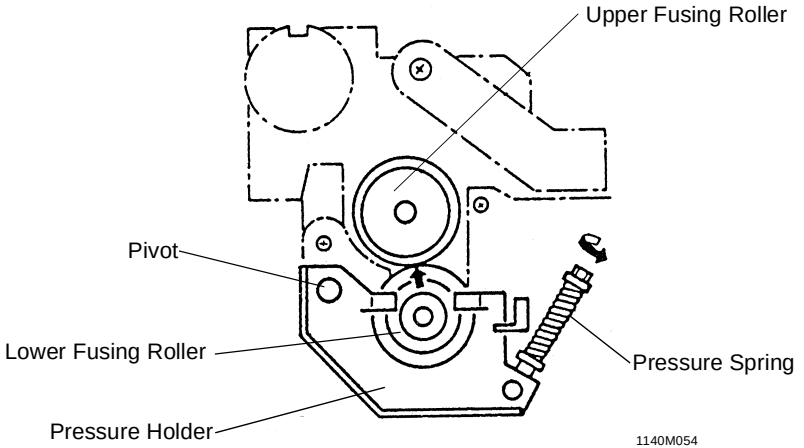
1155T33MCA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M3	PJ7A-1A	L	H	C~D-1

1155SBM1802A

18-2. Fusing Rollers Pressure Mechanism

- To ensure that there is a certain width of area of contact between the Upper and Lower Fusing Rollers, a pressure spring is installed to the front and rear Pressure Holders.
- The Lower Fusing Roller is held pressed against the Upper Fusing Roller at all times. It is released only when servicing the copier. Pressure can be adjusted with the Pressure Adjusting Screws at the front and rear. (The copier is shipped with the Lower Fusing Roller released from the Upper Fusing Roller.)
- The pressure between the two rollers is approx. 100 kg which is reached when the Pressure Adjusting Screws are fully tightened.



1155SBM1803A

18-3. Oil Application Mechanism

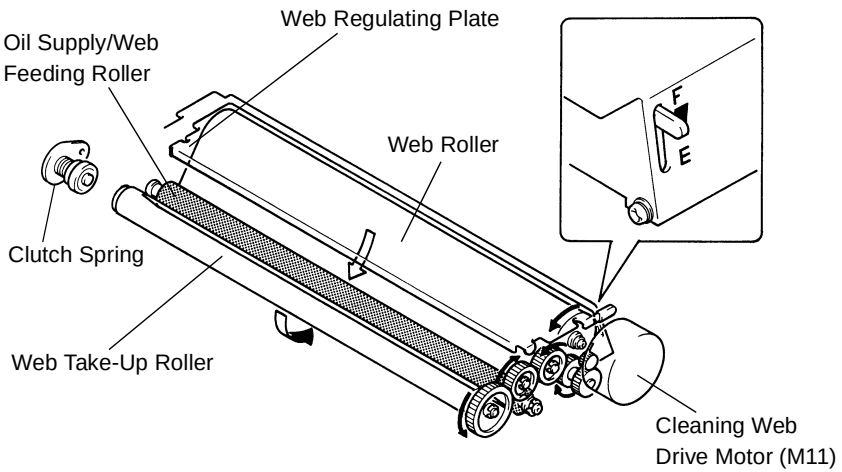
- The silicone oil is applied to the surface of the Upper Fusing Roller when the Cleaning Web being fed off the Web Roller is pressed tightly up against the Upper Fusing Roller by the Oil Supply/Web Feeding Roller. The surface of the Upper Fusing Roller is cleaned at the same time when silicone oil is applied to it.
- The silicone oil is then transferred onto the Lower Fusing Roller. The oil prevents copies having offsets from being produced and helps the paper be stripped off the surface of the Upper or Lower Fusing Roller.
- The Oil Supply/Web Feeding Roller is made of foam rubber and is thus elastic. This provides a wider width of area of contact between this roller and the Upper Fusing Roller, enhancing cleaning and oil application efficiency. This roller also functions to feed the Cleaning Web as it is being taken up by the Web Take-Up Roller.

1155SBM1804A

18-4. Cleaning Web Take-Up Mechanism

- The Cleaning Web wound around the Web Roller is taken up by the Web Take-Up Roller which is driven by Cleaning Web Drive Motor.
- Cleaning Web Drive Motor is turned about one turn in every 7 to 14 copies made to take up the Cleaning Web.*

  *The length of the Cleaning Web taken up per one revolution of the Cleaning Web Drive Motor varies depending on the amount of Cleaning Web which has already been taken up. That is, in the beginning of a new roll of Cleaning Web, a shorter length of web is taken up per one revolution of the Cleaning Web Drive Motor, as there is a very little amount of web taken up by the Web Take-Up Roller. The more the web is taken up, the longer the length of web taken up. The copier therefore refers to the count of the "Web Roller" counter and turns the Cleaning Web Drive Motor one turn, in the beginning, for every 7 copies made and, at the last stage, for every 14 copies made, thereby ensuring that a given amount of web is taken up for each copy.
- The Web Take-Up Roller Shaft is provided with a Clutch Spring that prevents the roller from turning backward, thereby preventing the Cleaning Web from developing slack or wrinkling during take-up.
- On the right side at the front of the Fusing Unit, there is a gauge provided showing the approximate amount of Cleaning Web still available for use. It eliminates the need of removing the Cleaning Web Assy to check for the amount of web.



1075M024AA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M11	PJ2A-11A	L	H	C-1

1155SBM1805A

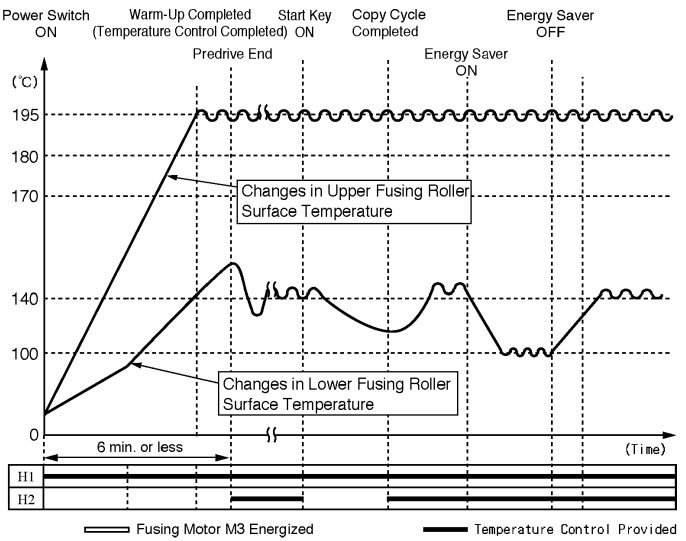
18-5. Fusing Temperature Control

● The Fusing Unit is provided with two heater lamps, each turning ON to provide fusing temperature control at a particular timing so that power consumption can be minimized.

Part Name	Symbol	Function	Controlled Temperature
Upper Fusing Roller Heater Lamp	H1	Turns ON during the warming-up cycle, a copy cycle, and in the standby state following the completion of warm-up. (The lamp provides temperature control at all times.)	190C°
Lower Fusing Roller Heater Lamp	H2	Turns ON in the standby state following the completion of warm-up.	140C°

* During the Energy Saver mode, the Lower Fusing Roller temperature is controlled at 100°C in stead of the normal 140°C, while the Upper Fusing Roller temperature is controlled at 190°C as in the normal timing.
* “Temperature control” refers to the process of turning ON and OFF the heater lamps to arrive at a predetermined temperature.
* “Temperature control completed” means the predetermined temperature has been reached.

◆ **Example:** The copier is turned ON when the Upper and Lower Fusing Rollers are cool in the morning and a copy cycle is run following the completion of warm-up.



1155M081CB

<Temperature Control>

- Upper Fusing Roller Thermistor and Lower Fusing Roller Thermistor detect the surface temperatures of the corresponding rollers. They provide analog voltage inputs to Master Board for the control of fusing temperature.

Detection of Abnormally High Temperature

When the Upper Fusing Roller Thermistor detects an abnormally high temperature (215°C or higher), Master Board outputs a signal to turn OFF Main Relay, thus cutting off power to the heater lamps.

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
H1 (SSR1)	PJ8A-3B	L	H	A-1~2
H2 (SSR2)	PJ8A-4B	L	H	A-1~2

	CONTROL SIGNAL	Low Temp. ↔ High Temp.	WIRING DIAGRAM
TH1	PJ3A-9B	Analog Input	B-1~2
TH2	PJ3A-10B	Analog Input	B~C-1~2

18-6. CPM Control

● The CPM (copies/minute) control is provided to keep good fusing performance even in multi-copy cycles and with the system power sourced from a single power outlet.

<What is CPM Control?>

● As noted earlier, only Upper Fusing Roller Heater Lamp is ON during a copy cycle. Because of that, the Fusing Roller surface temperature goes down in a multi-copy cycle, resulting in degraded fusing performance. The copier therefore estimates the fusing performance based on the Fusing Roller surface temperature and, when the fusing performance is considered to be degraded, it decreases the CPM by 25% in an attempt to recover good fusing performance. (When the CPM is decreased, it provides a greater interval between sheets of paper, which gives time for the Fusing Roller surface temperature to increase. This recovers the fusing performance. When good fusing performance is recovered, the copier resumes the normal CPM.)

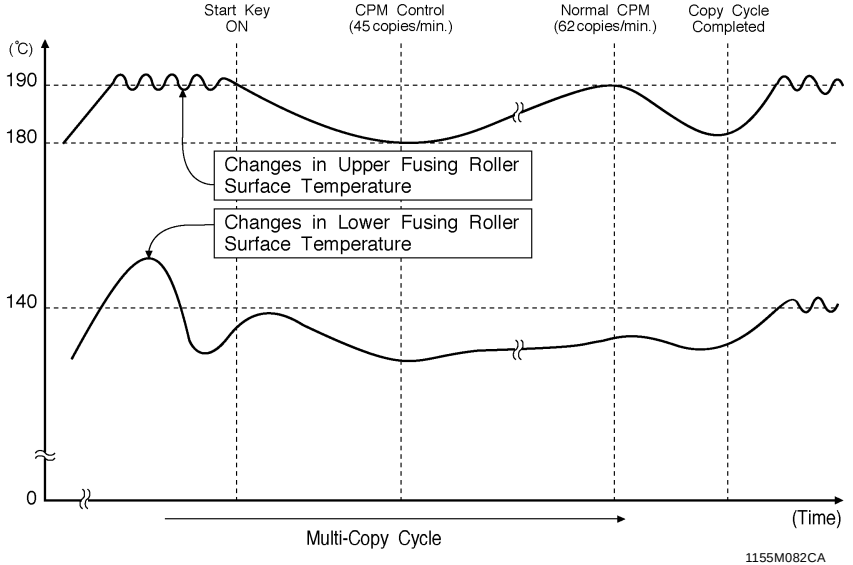
<CPM Control>

● When the normal CPM is 62 copies/min., for example, and when the copier determines that fusing performance has been degraded, it reduces the CPM by 25% to 45 copies/min.

● During the CPM control, the copier provides a greater interval between scan motions and between sheets of paper, thereby giving the Fusing Roller time to restore the temperature. (The system speed is not varied.)

● The CPM control can be activated if a multi-copy cycle is run immediately after the power has been turned ON in the morning (when the Fusing Rollers remain cool). In times other than early morning, however, the Lower Fusing Roller is heated by Lower Fusing Roller Heater Lamp from the inside and, even with a multi-copy cycle, the CPM control is not readily activated. (For paper with a large weight and size, however, the CPM control can be activated even at times other than early morning.)

◆ **Multi-Copy Cycle Immediately After Warm-up in Early Morning (normal CPM: 62)**

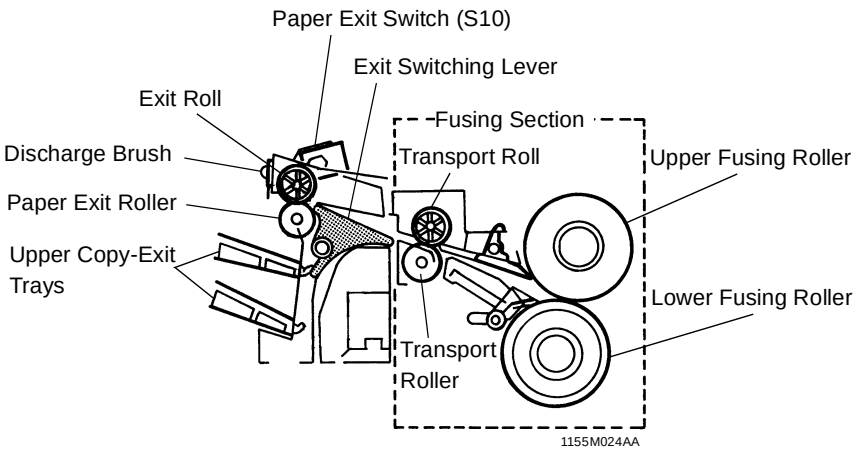


1155SBM1900A

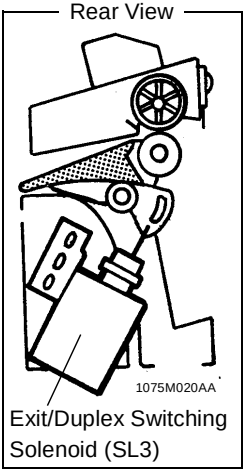
19. EXIT/DUPLEX SWITCHING SECTION

● This section determines the path of the sheet coming from the fusing section. The sheet can be directed along either of two paths:
① Out onto the upper copy-exit tray (ejection), or
② Toward the lower copy-exit tray or duplex unit.

Front View



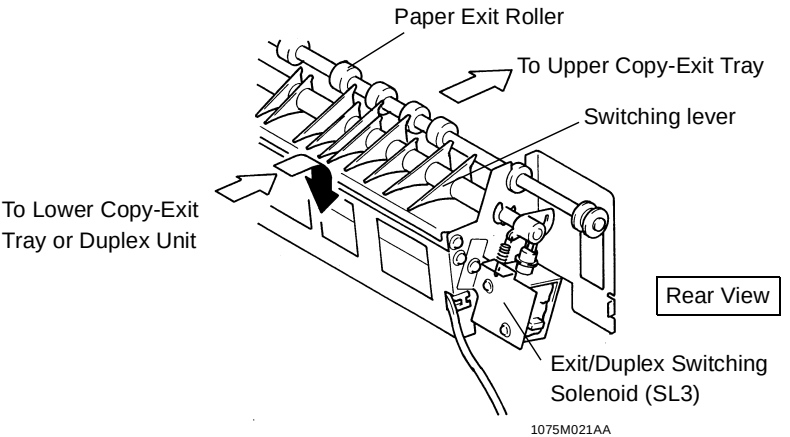
Rear View



• **Exit/Duplex Switching Mechanism**

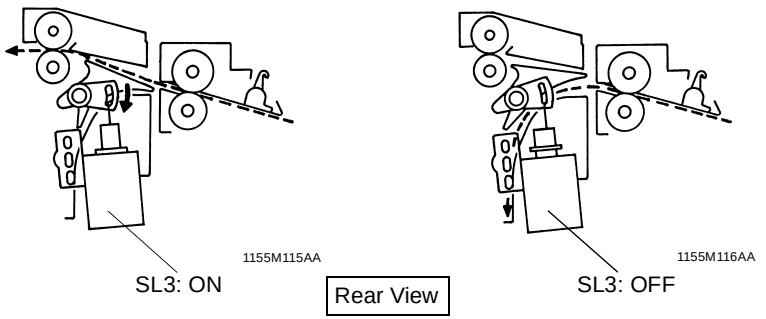
<Overview>

● The Exit/Duplex Switching Solenoid moves the switching levers so as to direct paper either out into the upper copy-exit tray or else onward toward the lower copy-exit tray or the duplex unit.



<SL3 ON:
Sheet is ejected to upper copy exit tray.>

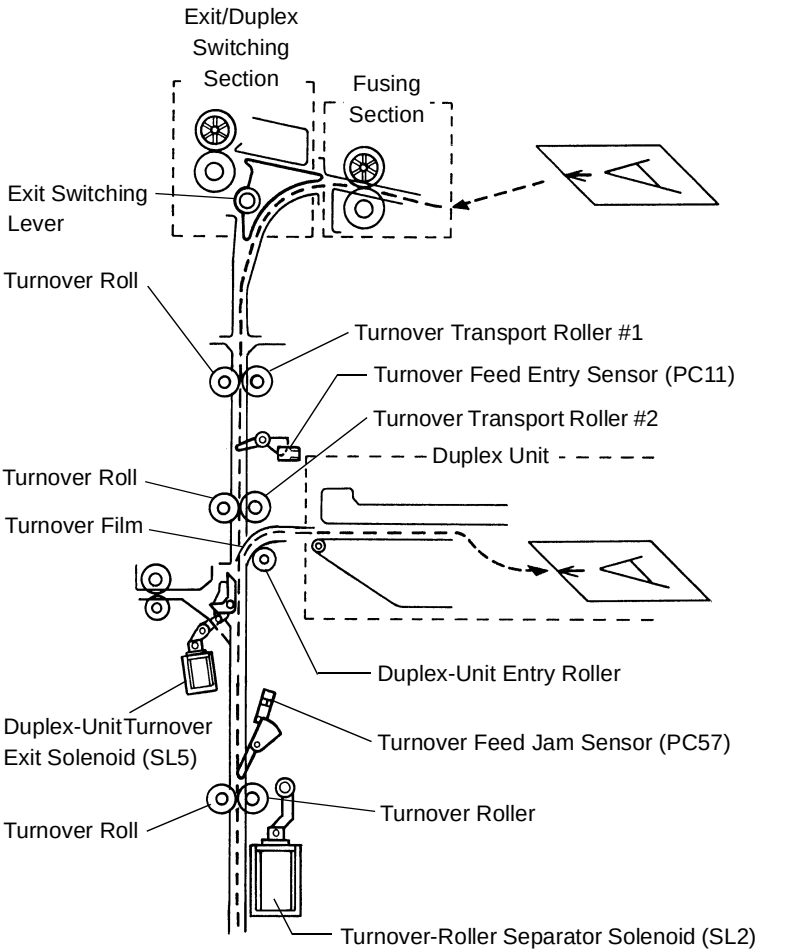
<SL3 OFF:
Sheet continues transport to lower copy exit tray or to duplex unit.>



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
SL3	PJ2A-14A	L	H	D-1

20. TURNOVER SECTION

● This section receives the sheet transported from the Exit/Duplex Switching Section, turns the sheet over, and sends it out trailing-edge-first. The sheet then proceeds either to ejection into the Lower Paper-Exit Tray or else transport to the Duplex Unit.

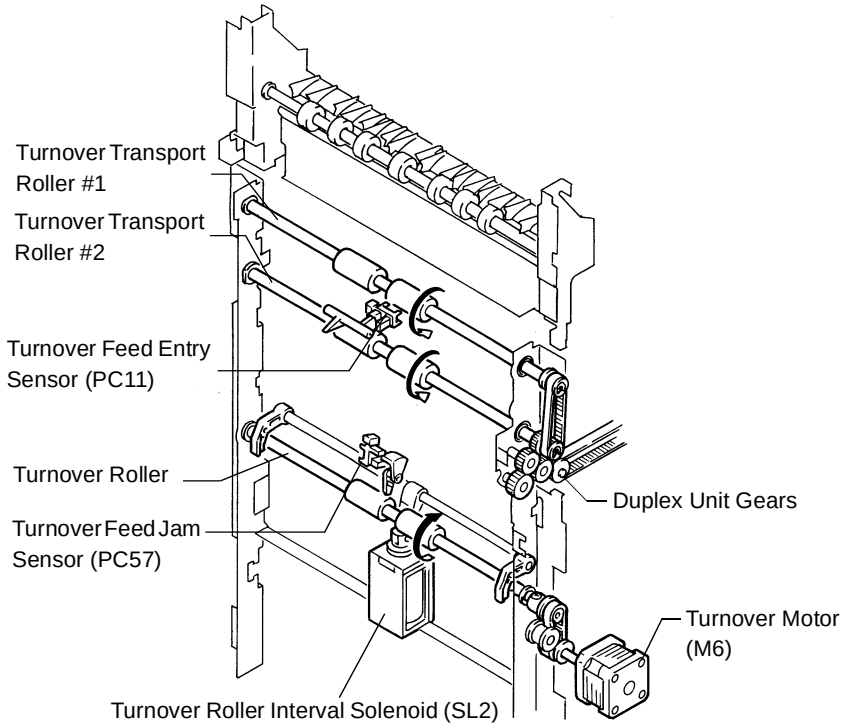


1155M025AB

1155SBM2001A

20-1. Drive Mechanism

● Turnover Transport Rollers #1 and #2 are driven by the Fusing Motor by means of gears on the Duplex Unit. The Turnover Roller is controlled independently by the Turnover Motor.

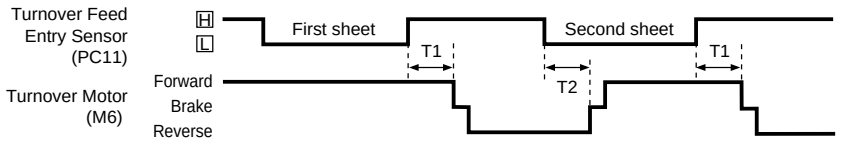


1155M026AA

20-2. Turnover Control

- The Turnover Motor is a step motor. Forward rotation transports paper downward, while reverse rotation transports paper towards the lower-paper-exit tray/duplex unit side.
- The Turnover Feed Entry Sensor controls the timing of the Turnover Motor forward/reverse switching. For the first sheet of paper, the Turnover Motor direction is switched a specified interval after the sheet passes the Turnover Feed Entry Sensor. (Specifically, the direction is switched at the point where the trailing edge of the sheet moves beyond the turnover film.)
- For subsequent sheets, the Turnover Motor direction is switched a specified interval after the Turnover Feed Entry Sensor detects the sheet's leading edge.
- In the event of a jam anywhere in the copier, the Turnover Feed Jam Sensor detects sheets that are left in the turnover section of the copier.

= If Turnover Roller is separated from drive roller =

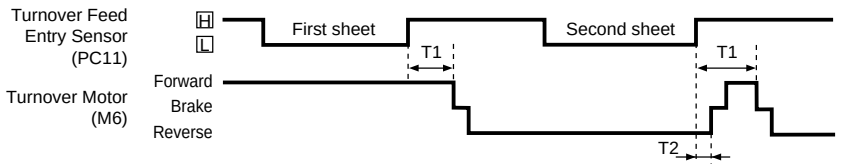


T1: 430msec T2: 570msec

*Brake Time: 50ms

1155T34MCB

= If Turnover Roller is engaged with drive roller =



T1: 430msec T2: 25msec

*Brake Time: 50ms

1155T35MCB

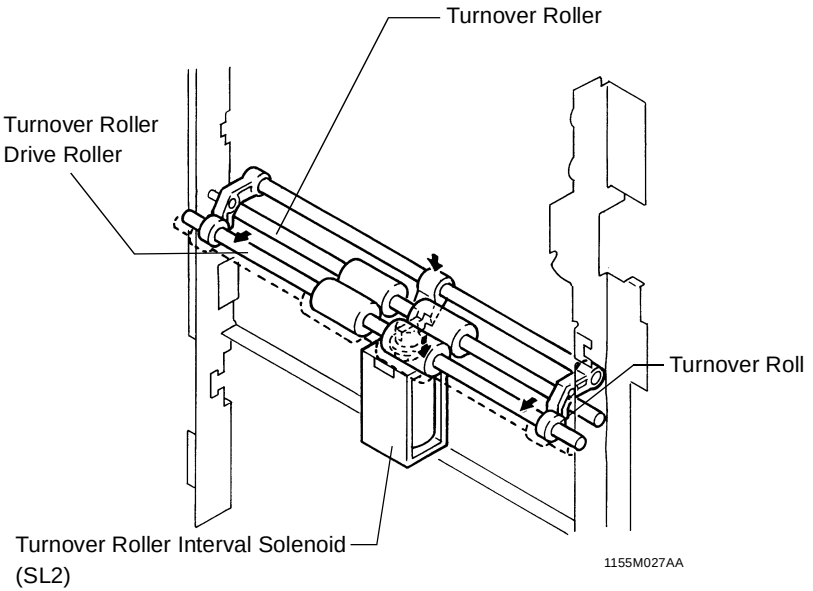
	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC11	PJ6B-14B	L	H	E-1
PC57	PJ6B-11B	L	H	F-1

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
M6	PJ9B-6~9B	Pulse Output		G-1

1155SBM2003A

20-3. Roller Separation Control

- This control prevents overlapped turnover during multiple copies. The control operates by disengaging the Transport Roller Drive Roller from the Transport Roller in the event that the leading edge of a copied sheet arrives at the Transport Roller before the trailing edge of the previous sheet has cleared this roller. Separation is generated by activation of the Turnover Roller Separator Solenoid.
- Activation of the Turnover Roller Interval Solenoid causes a lever to press against the Turnover Roll, so that the Turnover Roller Drive Roller moves away from the Turnover Roller.



	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
SL2	PJ6A-2B	L	H	G-1

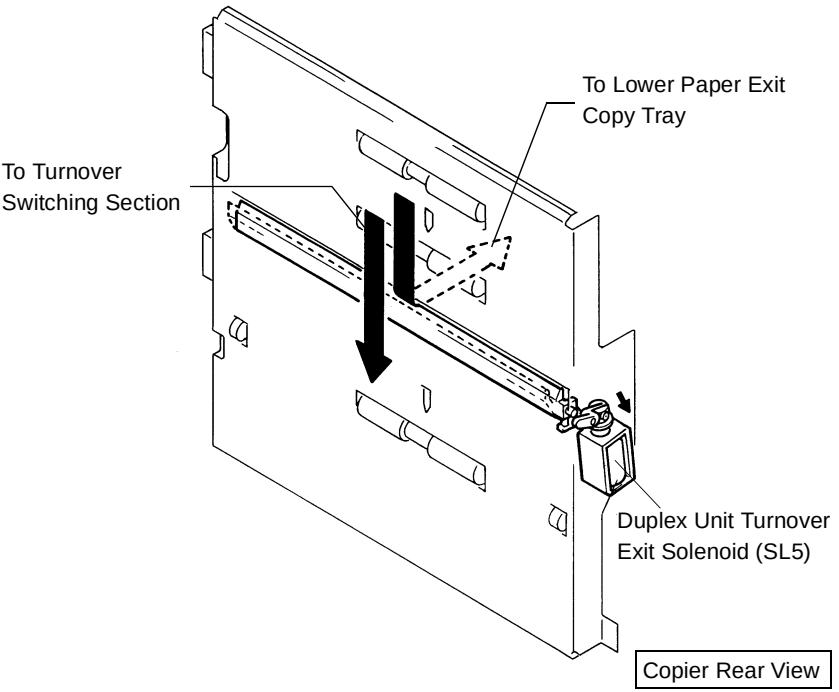
1155SBM2100A

21. LOWER PAPER EXIT SWITCHING SECTION

● This section determines the path of the sheet coming from the turnover section. Specifically, the section directs the sheet to either of the following.

① Ejection at the lower copy exit tray (if the copier is operated in folded sorting mode).

② Transport to the turnover switching section.

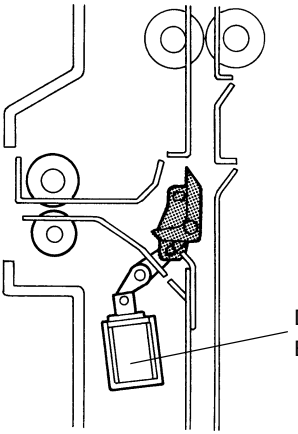


1155M002AA

• **Paper Exit Switching Section**

<Overview>

● The Duplex Unit Turnover Exit Solenoid selects the paper path by moving the switching lever. Depending on the Duplex Unit Turnover Exit Solenoid state (ON or OFF), the sheet moves either to the Lower Paper Exit Copy Tray (ejection) or else to the Turnover Switching Section.



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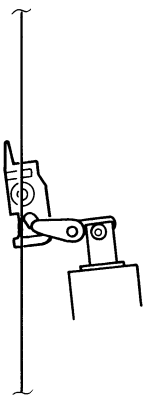
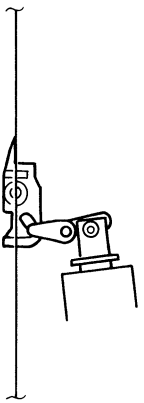
Copier Rear View

–SL5 ON–



1155M003AA

–SL5 OFF–

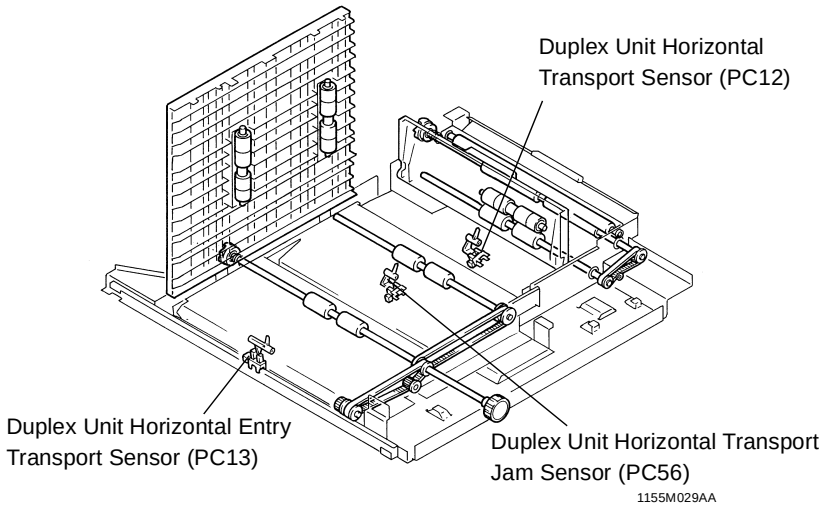


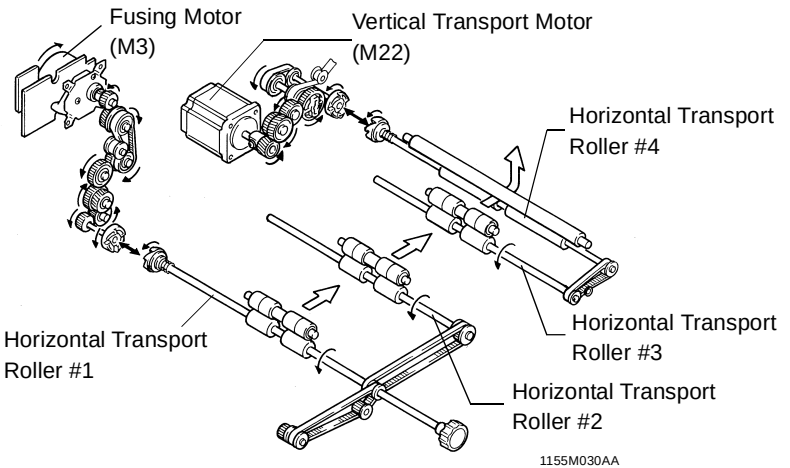
1155M004AA

	CONTROL SIGNAL	ON	OFF	WIRING DIAGRAM
SL5	PJ6A-3B	L	H	F-1

22. DUPLEX UNIT

- The Duplex Unit is driven by two motors: the Fusing Motor and the Vertical Transport Motor. Fusing Motor drives Horizontal Roller #1 by gear train, and Horizontal Roller #1 drives Horizontal Roller #2 by means of a timing belt. The sheet coming from the Transport Section is carried first by Roller #1 and then by Roller #2.
- The sheet then moves to Horizontal Transport Roller #3. Vertical Transport Motor drives Transport Roller #4 drives Horizontal Transport Roller #3 by means of a timing belt. The action of the duplex rollers transports the sheet up to the Transport Roller.

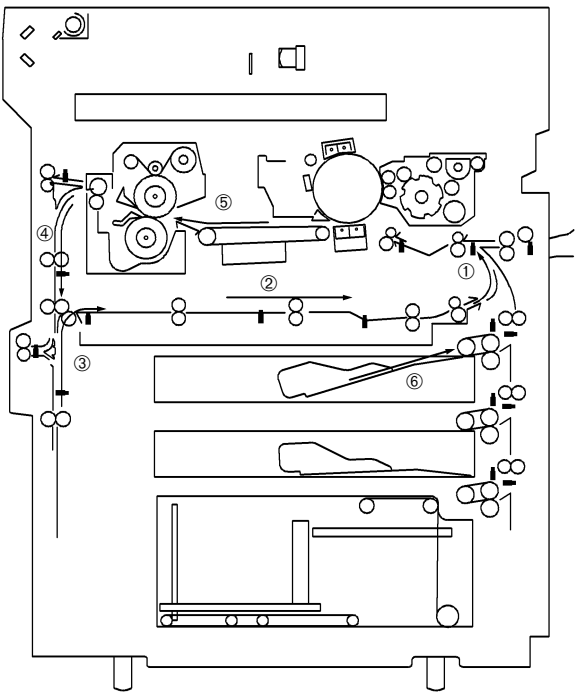




<Control>

	CONTROL SIGNAL	UNBLOCKED	BLOCKED	WIRING DIAGRAM
PC12	PJ7A-3B	H	L	G-29
PC13	PJ7A-4B	H	L	F~G-29
PC56	PJ7A-5B	H	L	G-29

- The duplex copy rate is enhanced by using a cyclic approach. Within each cycle, a fixed number are printed on one side, then turned over and printed on the other side. The cycle is repeated until all sheets have been printed on both sides. The copier starts the cycle by taking up and performing one-side copying on a fixed number of blank sheets (6 sheets, if A4 paper). The copier then refeeds these sheets for copying on the other side. When second-side copying is finished, the copier begins the next cycle.



1155M037AA

23. MEMORY BACKUP

IC1 of RAM Board connected to Master Board stores the setting/adjustment values set in the Tech. Rep. Modes as well as the counter counts. Backup Battery is mounted on the RAM Board to prevent the contents of memory from being lost when the power cord is unplugged or the RAM Board removed from the copier. Backup Battery requires a voltage of 2V or more to retain the contents of memory.

Important

As we noted above, the RAM stores critical data. If the RAM Board has been replaced with a new one, memory must first be cleared and then all settings be made again. It should also be noted that the RAM Board should not be replaced at the same time when the Master Board is replaced.

24. FLASH MEMORY

- The conventional system software has been upgraded by replacing the ROMs on each printed wiring board. This copier employs a flash memory for its system control IC mounted on Memory Board. Data can be easily rewritten by following the steps given below using the IC card (memory card) in which data has previously been recorded.

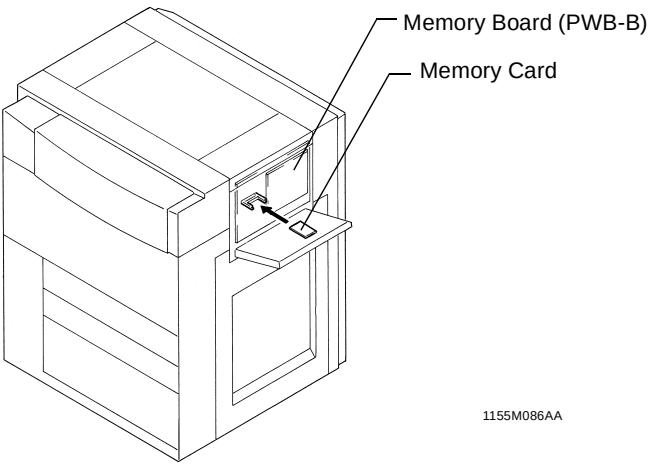
<Procedure>

1. Unplug the power cord from the power outlet and remove the Upper Right Cover.
2. Insert the memory card into the specified position on PWB-B.
3. Plug the power cord into the power outlet.
4. Turn ON Power Switch S1.
   * This rewrites the data.
5. On the Touch Panel, make sure that the data has been properly written. Then, unplug the power cord from the power outlet again.
   * Do not turn S1 OFF at this time.
6. Remove the memory card.

End

NOTE

● NEVER attempt to remove or insert the memory card with the copier turned ON.



SAFETY INFORMATIONS

⚠ Warning

- For replacement parts, use the genuine parts with their part numbers specified in the parts manual. Use of a wrong part could cause an overload or dielectric breakdown resulting in an electric shock or fire.
- Replace a blown fuse or thermal fuse with the corresponding genuine part with its part number specified in the parts manual. Use of a fuse with a different rating or one with the same rating but of a different type can result in a fire.
  Especially when a thermal fuse blows frequently, the thermal control system is probably faulty. Be sure to take necessary action.
- Before attempting to disassemble the machine, be sure to unplug its power cord. The machine contains a high voltage unit and a circuit with a large current capacity that may cause an electric shock or burn from sparking.
  The machine also contains quick moving parts, which could injure a person.
  If the machine uses a laser, a person can lose his/her eyesight by a laser beam leak.
- Wherever feasible, keep the covers and parts mounted when energizing the machine.
  If it is absolutely necessary to energize the machine with its cover removed, do not touch an exposed part that is being charged and use care not to allow your clothing to be caught by a timing belt, gear, or other moving part.
- Do not leave the machine unattended while it is being energized.

⚠ Caution

- To actuate an interlock switch with a cover removed or opened, be sure to use the interlock switch actuating jig. Use of folded paper can damage the interlock switch mechanism.
- Removal of a cover marked with the caution label shown on the right could expose you to a laser beam which can cause a loss of eyesight. Be sure to turn off the power when opening this cover.
  If a service job requires that the cover be opened with the power turned ON, be sure to wear laser protective goggles and ensure that no one enters the room in which the job is to be performed.

注意- ここを開くと不可視レーザ光が出ます。ビームを直接見たり、触れたりしないでください。
CAUTION- INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
VORSICHT- UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
ADVARSEL- USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
VARO! AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEEN
ADVARSEL- USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
VARNING- OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD STRÅLEN ÄR FARLIG

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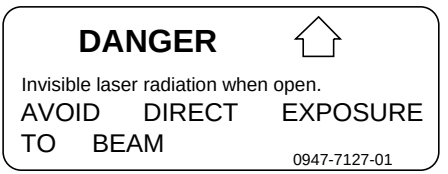

1144D270AA

Caution

- A high voltage is being applied to the part marked with the symbol shown on the right. Touching it can cause an electric shock. Be sure to unplug the power cord when servicing this part or other parts near it.
- When the machine is energized with any of its covers removed, never use a flammable spray near it, as a fire can result.
- Make sure that correct screws (diameter and length of the screw, binding/tapping screws) are used in the correct places when assembling parts. If a wrong screw is used, a short insulating distance could result. It could also result in collapsed threads, which provides only a poor grounding connection, resulting in an electric shock.
- A toothed washer and spring washer, if used originally, must be reinstalled. If they are left out, a contact failure results, causing an electric shock or fire.
- Replace a lithium cell only with one having the part number specified in the parts manual. An explosion could result if the cell is installed with wrong polarity or a wrong cell is installed. Dispose of a used lithium cell according to the applicable local regulations. Never throw it away or abandon it on the user's premises.

◆ Other Precautions ◆

- While the machine is being energized, do not unplug or plug in a connector on a PWB or relay harness.
- Since the Magnet Roller of the Imaging Unit generates a strong magnetic force, do not bring a CRT, watch, floppy disk, or magnetic card near it.
- Use of an air gun or vacuum generates static electricity which can cause the ATDC Sensor and associated parts to break down. Be sure therefore to use a blower brush or cloth to clean these parts. If a unit is to be cleaned, be sure to remove the sensors in advance.
- MOS ICs are susceptible to static electricity. When handling a PWB loaded with MOS ICs, follow precautions given in "INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs."
- The PC Drum is highly delicate. When handling the PC Drum, follow the precautions given in "HANDLING OF THE PC DRUM."
- To reassemble, reverse the order of disassembly unless otherwise specified.
- Note that replacement of a PWB may call for readjustments or resetting of particular items.

CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

ADVARSEL!: Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugle batteri tilbage til leverandøren.

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1. SERVICE INSTRUCTIONS

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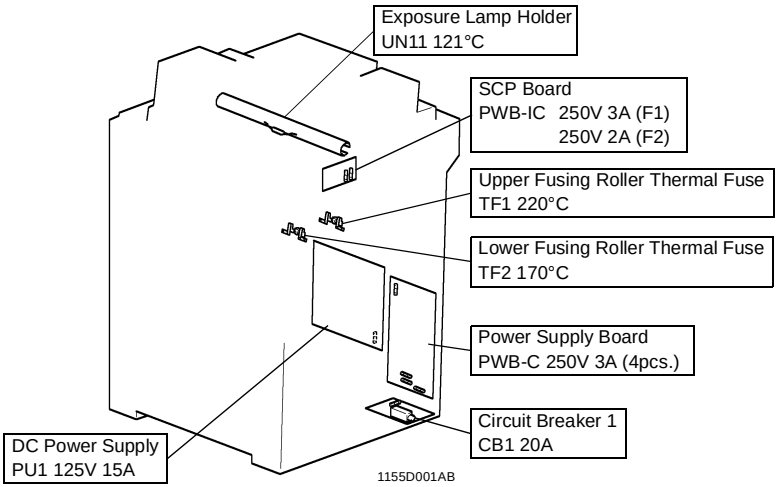
1-1. PRECAUTIONS FOR DISASSEMBLY/ADJUSTMENTS

Observe the following precautions whenever servicing the copier.

- Be sure to unplug the copier from the outlet before attempting to service the copier.
- The basic rule is not to operate the copier anytime during disassembly.
  If it is absolutely necessary to run the copier with its covers removed, use care not to allow your clothing to be caught in revolving parts such as the timing belt and gears.
- Be sure to use the Interlock Switch Actuating Jig whenever it is necessary to actuate the Interlock Switch with the covers left open or removed.
- Do not plug in or unplug print jacks on the PWB or connect or disconnect the PWB connectors while power is being supplied to the copier.
- Do not use flammable spray around the copier in operation.
- The Magnet Roller of the Imaging Unit generates strong magnetic force. Do not bring it near a cathode-ray tube or watch.
- The lithium cell in RAM Board can burst. At replacement, make sure of the correct polarity and do not change it or create a closed circuit.
  A used lithium cell should be disposed of according to the local regulations and never be discarded casually or left unattended at the user's premises.
- Do not use an air gun or vacuum cleaner for cleaning the ATDC Sensor and other sensors, as they can cause electrostatic destruction. Use a blower brush and cloth. If a unit containing these sensors is to be cleaned, first remove the sensors from the unit.
- When handling the PWBs with MOS ICs, observe "Instructions for Handling the PWBs with MOS ICs."
- When handling the PC Drum, observe precautions given in "Handling of the PC Drum."
- Note that replacement of a PWB may call for readjustments or resetting of particular items.
- Use the right screw in the right place at reassembly. Note that some are longer and some are thicker than others.
- A toothed washer is used with the screw that secures the ground wire to ensure positive conduction. Do not forget to insert this washer at reassembly.
- To reassemble the copier, reverse the order of disassembly unless otherwise specified.
- If it becomes necessary to replace the thermal fuse or any other fuse mounted on a board, be sure to use one of the rating marked on the blown fuse.
  Always note the rating marked on the fuse, as the rating and mounting site or number used are subject to change without notice.
- Do not pull out the Toner Hopper while the Toner Bottle is turning, as a damaged Toner Replenishing Motor or locking mechanism could result.
  If the copier is to be run with the Front Door swung down, make sure that the Toner Hopper is in the locked position.

CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

<Identification of Fuses and Circuit Breakers>



1) Precautions for Handling the Laser Equipment

- The laser used in this copier is a semiconductor laser having the following specifications.

Max. power	:	15mWx2
Output wavelength	:	780nm

* When laser protective goggles are to be used, select ones with a lens conforming to the above specifications.

- When a disassembly job needs to be performed in the laser beam path, such as when working around the printerhead and PC Drum, be sure first to turn the copier OFF.
- If the job requires that the copier be left ON, take off your watch and ring and wear laser protective goggles.
- A highly reflective tool can be dangerous if it is brought into the laser beam path. Use utmost care when handling tools on the user's premises.
- The printerhead is not maintainable in the field. It is to be replaced as an assembly including the control board. Never, therefore, attempt to remove the laser diode or adjust trimmers on the control board.

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1-2. INSTRUCTIONS FOR HANDLING THE PWBs WITH MOS ICs

The following precautions must be observed when handling P.W. Boards with MOS (Metal Oxide Semiconductor) ICs.

During Transportation/Storage:

- During transportation or when in storage, new P.W. Boards must not be indiscriminately removed from their protective conductive bags.
- Do not store or place P.W. Boards in a location exposed to direct sunlight.
- When it becomes absolutely necessary to remove a Board from its conductive bag or case, always place it on its conductive mat in an area as free as possible from static electricity.
- Do not touch the pins of the ICs with your bare hands.

During Replacement:

- Before unplugging connectors from the P.W. Boards, make sure that the power cord has been unplugged from the outlet.
- When removing a Board from its conductive bag or conductive case, do not touch the pins of the ICs or the printed pattern. Place it in position by holding only the edges of the Board.
- Before plugging connectors into the Board, make sure that the power cord has been unplugged from the power outlet.

During Inspection:

- Avoid checking the IC directly with a multimeter; use connectors on the Board.
- Never create a closed circuit across IC pins with a metal tool.
- When it is absolutely necessary to touch the ICs and other electrical components on the PW Board, be sure to ground your body.

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1-3. HANDLING OF THE PC DRUM

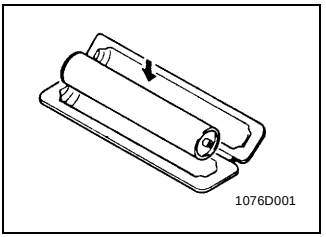
During Transportation/Storage:

- Use the specified carton whenever moving or storing the PC Drum.
- The storage temperature is in the range between -20°C and +40°C.
- In summer, avoid leaving the PC Drum in a car for a long time.

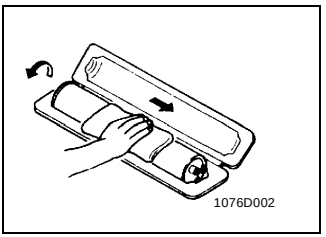
Handling:

- Ensure that the correct PC Drum is used.
- Whenever the PC Drum has been removed from the copier, store it in its container or protect it with a Drum Cloth.
- The PC Drum exhibits greatest light fatigue after being exposed to strong light over an extended period of time. Never, therefore, expose it to direct sunlight.
- Use care not to contaminate the surface of the PC Drum with oil-base solvent, fingerprints, and other foreign matter.
- Do not scratch the surface of the PC Drum.
- Do not apply chemicals to the surface of the PC Drum.
- Do not attempt to wipe clean the surface of the PC Drum.

If, however, the surface is contaminated with fingerprints, clean it using the following procedure.

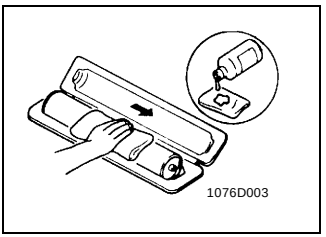


1. Place the PC Drum into one half of its container.



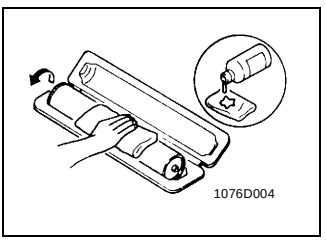
2. Gently wipe the residual toner off the surface of the PC Drum with a dry, dust-free cotton pad.
   1) Rotate the PC Drum so that the area of its surface on which the line of toner left by the Cleaning Blade is present is facing straight up. Wipe the surface in one continuous movement from the rear edge of the PC Drum to the front edge and off the surface of the PC Drum.
   2) Rotate the PC Drum slightly and wipe the newly exposed surface area with a CLEAN face of the dust-free cotton pad. Repeat this procedure until the entire surface of the PC Drum has been thoroughly cleaned.

* At this time, always use a CLEAN face of the dry dust-free cotton pad until no toner is evident on the face of the Pad after wiping.



3. Soak a small amount of either ethyl alcohol or isopropyl alcohol into a clean, unused dust-free cotton pad which has been folded over into quarters. Now, wipe the surface of the PC Drum in one continuous movement from its rear edge to its front edge and off its surface one to two times.

* Never move the pad back and forth.



4. Using the SAME face of the pad, repeat the procedure explained in the latter half of step 3 until the entire surface of the PC Drum has been wiped. Always OVERLAP the areas when wiping. Two complete turns of the PC Drum would be appropriate for cleaning.

NOTES

- *The Organic Photoconductor Drum is softer than CdS and Selenium Drums and is therefore susceptible to scratches.*
- *Even when the PC Drum is only locally dirtied, wipe the entire surface.*
- *Do not expose the PC Drum to direct sunlight. Clean it as quickly as possible even under interior illumination.*
- *If dirt remains after cleaning, repeat the entire procedure from the beginning one more time.*

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1-4. PARTS WHICH MUST NOT BE TOUCHED

(1) Red painted Screws

Purpose of Application of Red Paint

Red painted screws show that the assembly or unit secured can only be adjusted or set at the factory and shall not be readjusted, set, or removed in the field.
Note that when two or more screws are used on the part in question, only one representative screw may be marked with red paint.

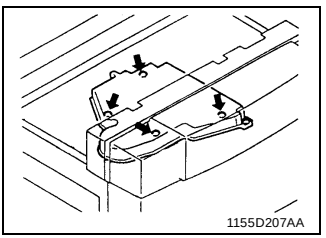
(2) Variable Resistors on Board

Do not turn the variable resistors on boards for which no adjusting instructions are given in "ADJUSTMENT."

(3) Other Screws

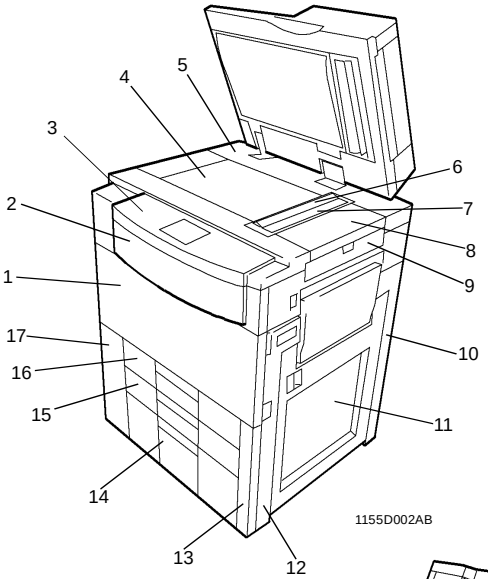
Although not marked with red paint, the following screws must not be loosened or readjusted.

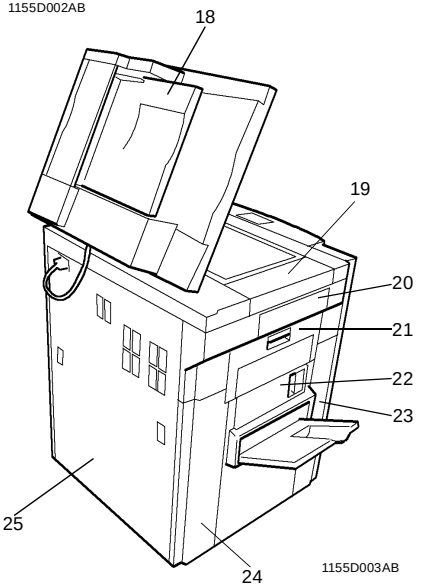
4 screws on the PH Unit Cover



2. DISASSEMBLY/REASSEMBLY

2-1. DOORS, COVERS, AND EXTERIOR PARTS: IDENTIFICATION AND REMOVAL PROCEDURES



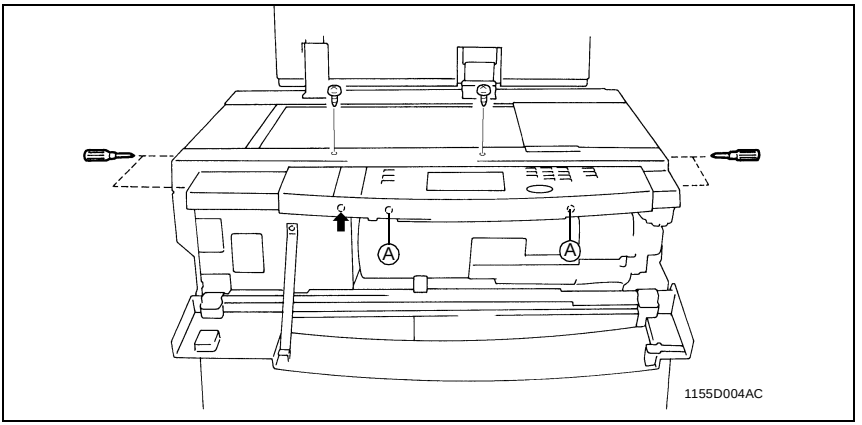


No.	Part Name	Removal Procedure
1	Front Lower Door	Swing down No. 1. → Remove two screws that secure the belt. → Remove four screws that secure the Front Lower Door.
2	Front Upper Door	Swing down No. 2. → Remove one screw that secures the belt. → Remove four screws that secure the Front Upper Door.
3	Control Panel Unit	See p. D-8.
4	Original Glass	Swing down No. 2. → Open No.18 → Remove No. 9. → Remove No. 8. → Remove No. 6.
5	Upper Rear Cover	Remove No.18. → Remove three screws that secure the Upper Rear Cover.
6	Glass Holder	Swing down No. 2. → Open No.18. → Remove No. 9. → Remove No. 8. → Remove four screws that secure the Glass Holder.
7	EDH Original Glass	Swing down No. 2. → Open No.18. → Remove No. 9. → Remove No. 8. → Remove No. 6.
8	Upper Right Cover	Swing down No. 2. → Open No.18. → Remove No. 9. → Remove three screws that secure the Upper Right Cover.
9	Right Upper Cover	Swing down No. 2. → Remove three screws that secure the Right Upper Cover.
10	Right Rear Cover	Remove three screws that secure the Right Rear Cover.
11	Right Door (Multi Bypass Unit)	Remove No.10. → Remove the harness from two wiring saddles. → Unplug three connectors. → Remove one ground wire mounting screw → Open the Right Door and pull it up.
12	Right Front Cover	Swing down No.1. → Remove two screws that secure the Right Front Cover.
13	Front Right Cover	Slide out all paper drawers. → Remove two screws that secure the Front Right Cover.
14	3rd Drawer	See p. D-25.
15	2nd Drawer	Slide out the drawer and then, lifting it slightly up, pull it out of position.
16	1st Drawer	
17	Front Left Cover	Slide out all paper drawers. → Remove four screws that secure the Front Left Cover and Left Front Cover. (The Front Left Cover and Left Front Cover are secured by means of metal plates.)
23	Left Front Cover	
18	EDH	Unplug one connector. → Remove two screws that secure the EDH.
19	Upper Left Cover	Remove No. 5. → Remove one screw that secures the Upper Left Cover.
20	Left Upper Cover	Swing down No. 1, 2. → Open No. 21. → Remove two screws that secure the Left Upper Cover.
21	Left Upper Door	See p. D-66.
22	Left Lower Door	Remove four screws and the Left Lower Door Cover. → Remove the harness from one wiring saddle. → Unplug one connector. → Remove one ground wire mounting screw → Open the Left Lower Door and pull it up.
24	Left Rear Cover	Remove three screws that secure the Left Rear Cover.
25	Rear Cover	Remove seven screws that secure the Rear Cover.

◆ Removal of the Control Panel Unit (No. 3)

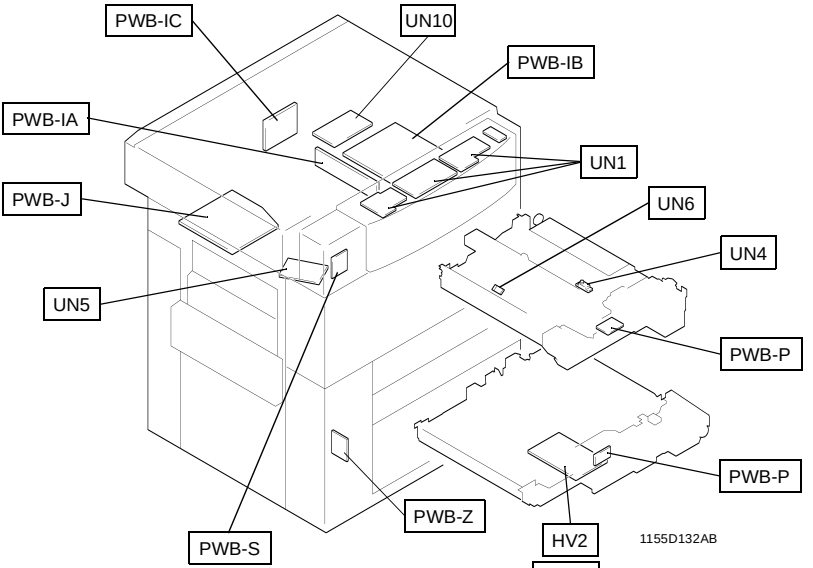
1. Remove the Right Upper Cover and Left Upper Cover.
2. Raise the Electronic Document Hander and remove the two screws.
3. Loosen the four screws at the right and left and one at the front illustrated below.
4. Loosen the two screws marked with Ⓐ, raise the control panel, unplug two connectors and one ground wire connector, and then remove the Control Panel Unit.

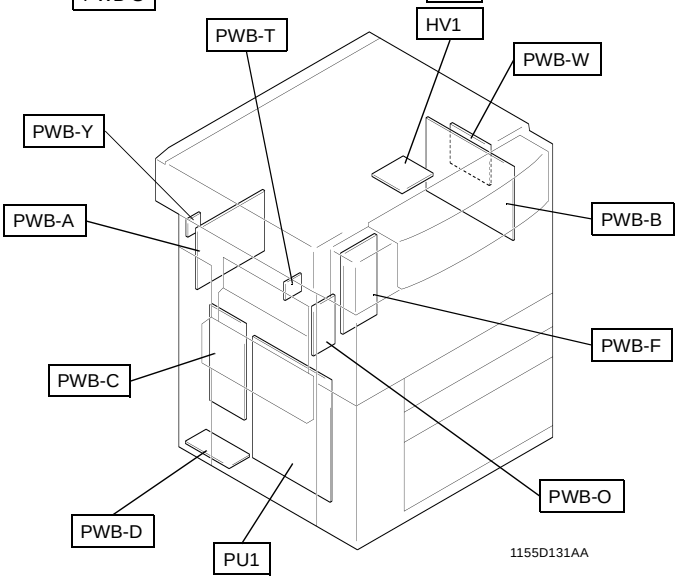
* To remove only the control panel, loosen two screws marked with Ⓐ, raise the control panel, unplug two connectors and one ground wire connector.



2-2. REMOVAL OF CIRCUIT BOARDS AND OTHER ELECTRICAL COMPONENTS

- When removing a circuit board or other electrical component, refer to "PRECAUTIONS FOR HANDLING THE PWBs" contained in SWITCHES ON PWBs and follow the corresponding removal procedures.
- The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.
- Where it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.





Symbol	Part Name	Removal Procedure
PWB-A	Master Board	Remove No. 25. → Remove the Master Board cover.
PWB-B	Memory Board	Remove No. 8, 9. → Remove the IR Unit fixing bracket. → Remove the MSC Board cover.
PWB-C	Power Supply Board	Remove No. 25.
PWB-D	Noise Filter Board	Remove No. 25. → Remove the circuit breaker assy. → Remove mounting bracket.
PWB-F	Drawer S/P Board	Remove No. 25.
PWB-J	PHC Board	Slide out the IR Unit. → Remove the PH Board cover.
PWB-O	Toner Replenishing Motor Control Board	Remove No. 25.
PWB-P	Wire Cleaning Motor Drive Board	<PC Drum Charge> Slide out the PC Unit. → Remove the PC Unit front cover.
		<Image Transfer/Paper Separator> Slide out the Transport Tray Assy. → Remove the Transport Unit cover. → Remove the Fusing Unit front cover.
PWB-S	Tech. Rep. Setting Switches Board	Swing down No. 2. → Remove the control panel lower cover assy.
PWB-T	Synchronizing Motor Control Board	Remove No. 25.
PWB-W	ECC Board	Remove No. 8, 9. → Remove the IR Unit fixing bracket. → Remove the Memory Board cover.
PWB-Y	RAM Board	Remove No. 25.
PWB-Z	Duplex Unit Turnover Motor Control Board	Slide out all paper drawers. → Remove No. 17, 23. → Remove the Turnover Motor cover. → Remove the Turnover Motor Assy. → Remove the Turnover Motor.
PWB-IA	CCD Board	See p. D-31.
PWB-IB	Image Processing Board	Remove No. 4. → Remove the board cover.
PWB-IC	SCP Board	Remove No. 25.
UN1	Control Panel	Remove No. 3.
UN4	ATDC Sensor	See p. D-56.
UN5	Polygon Motor Control Board	Slide out the IR Unit.
UN6	AIDC Sensor	See p. D-43.
UN10	Exposure Lamp Inverter Unit	Remove No. 25. → Remove the board cover.
HV1	PC Drum Charge/Developing Bias HV	Remove No. 25.
HV2	Image Transfer/Paper Separator HV	Slide out the Transport Tray Assy. → Remove the Transport Unit cover. → Remove the Fusing Unit front cover. → Remove the Suction Deck. → Remove the Fusing Unit. → Remove the base plate.
PU1	DC Power Supply	Remove No. 22. → Remove the Turnover Unit Assy.

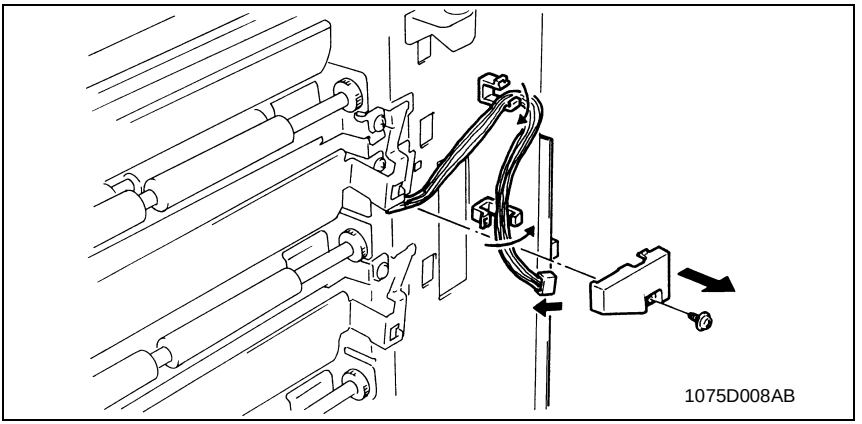
1) Readjustments and re-settings to be made when the RAM Board or ATDC Sensor has been replaced

1. When the RAM Board has been replaced:
   - Clear memory, then make the necessary settings again for Tech. Rep. Choice, User's Choice, and Adjust.
2. When the ATDC Sensor has been replaced:
   - Discard the developer which had been used until the ATDC Sensor was replace; then, charge fresh starter and run F8 (ATDC Sensor Adjustment) and F5 (AIDC Sensor Adjustment).

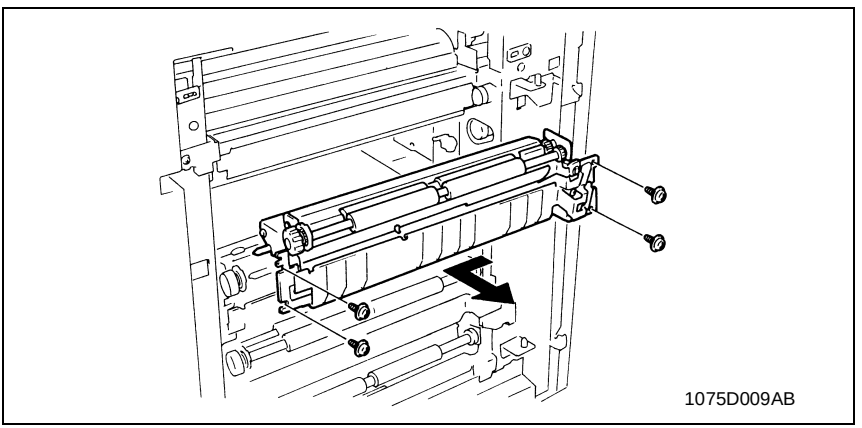
2-3. PAPER TAKE-UP/TRANSPORT SECTIONS

1) Removal of the Paper Take-Up Unit

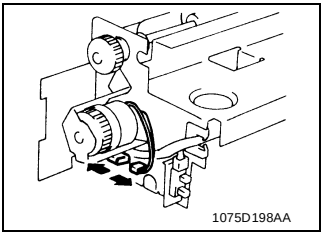
1. Remove the Right Door (Multi Bypass Unit).
2. Slide out the drawer.
3. Remove one screw and the harness cover.
4. Remove the locking wiring saddle.
5. Unplug connectors from Drawer S/P Board PWB-F.



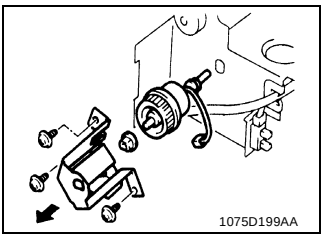
6. Remove four screws and slide the Paper Take-Up Unit in the direction shown in the illustration.



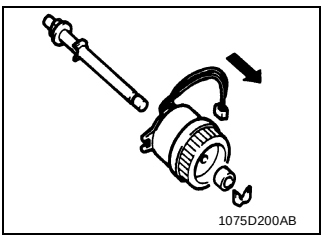
2) Replacement of the Paper Take-Up Clutch



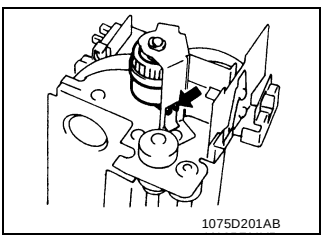
1. Remove the Paper Take-Up Unit.
2. Unplug one connector of the Paper Take-Up Clutch.



3. Remove three screws and the Paper Take-Up Clutch mounting bracket.
4. Remove the bushing and Paper Take-Up Clutch Assy.



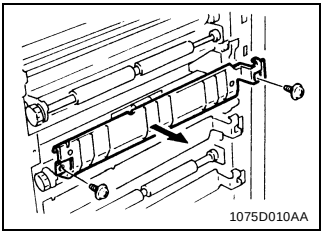
5. Remove the E-ring and Paper Take-Up Clutch.



NOTE

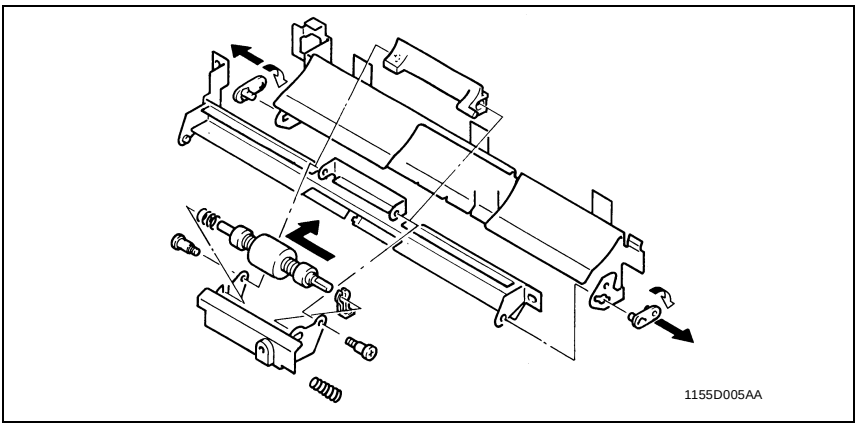
When reinstalling the Paper Take-Up Clutch, secure it in position with the protrusion of the clutch aligned with the cutout in the mounting bracket.

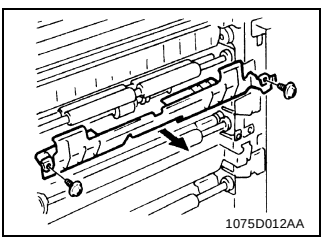
3) Replacement of the Paper Take-Up Roll, Paper Feed Roll, and Paper Separator Roll Assy



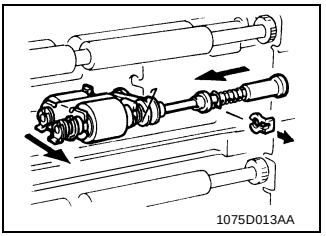
1. Open the Right Door.
2. Remove two screws and the Paper Separator Unit.

3. Remove the pivot pins on both ends and the Guide Plate.
4. Remove two shoulder screws of the Paper Separator Roll Assy.
5. Remove one C-clip and slide the Paper Separator Roll Assy off in the direction shown.



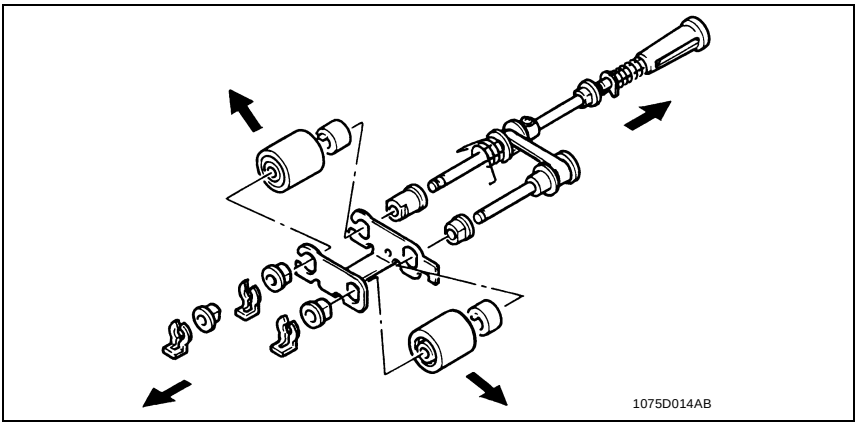


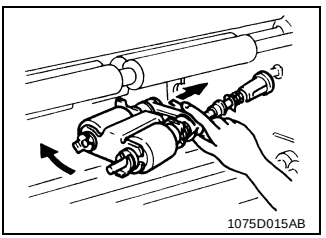
6. Remove two screws and the Paper Guide Plate.



7. Remove the C-clip and slide the bushing to the side.
8. Slide the coupling to the left and remove the Paper Take-Up Roll Assy.

9. Remove the C-clip and slide the bushing off to remove the Paper Take-Up Roll and Feed Roll.

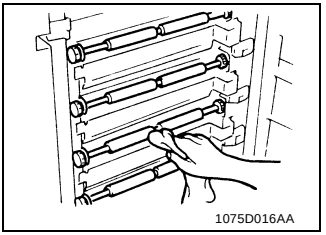




NOTE

When reinstalling the Paper Take-Up Roll Assy, place it horizontally by holding down the torsion spring.

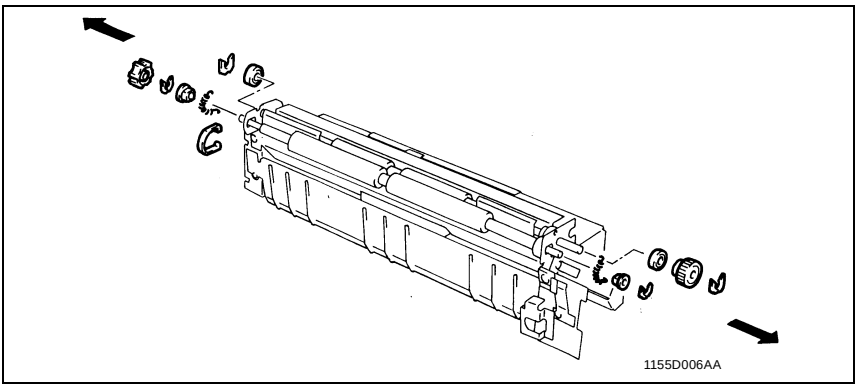
4) Cleaning of the Vertical Transport Rollers



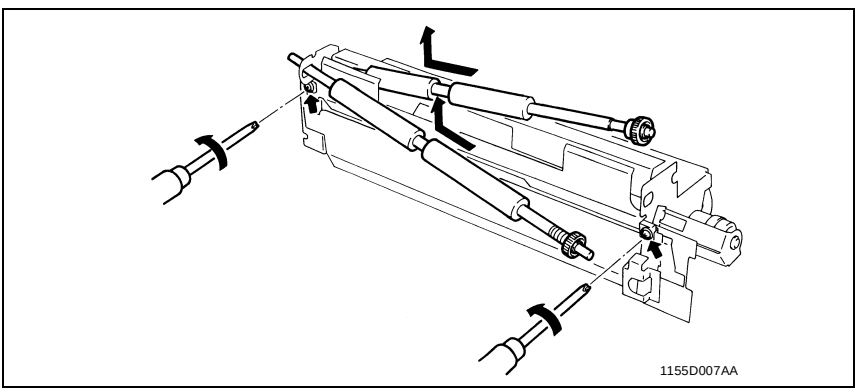
1. Open the Right Door.
2. Using a soft cloth dampened with alcohol, wipe clean each Vertical Transport Roller.

5) Replacement of the Vertical Transport Rollers

1. Remove the Paper Take-Up Unit.
2. Remove the Misfeed Removal Knob, edge cover, and two pressure springs.
3. Remove four C-clips, two bushings, one gear, and two bearings.



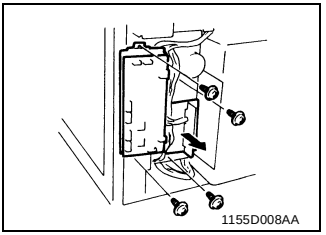
4. Remove the Vertical Transport Roller (white) by sliding it in the direction shown.
5. Loosen two screws on the Paper Guide Plate and remove the Vertical Transport Roller (black) by sliding it in the direction shown.



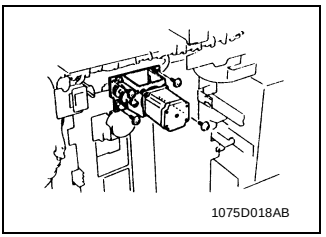
NOTE

When the Vertical Transport Rollers have been replaced, perform Loop Adjustment.

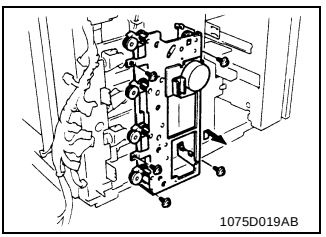
6) Removal of the Lift-Up Motor (Metric areas only)



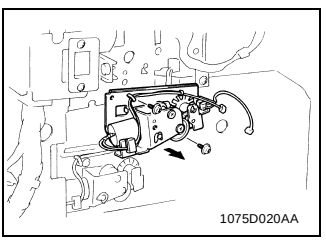
1. Remove the Right Rear Cover and Rear Cover.
2. Unplug the connectors from Toner Replenishing Motor Control Board and Drawer S/P Board and remove the harness from the wiring saddle.
3. Remove four screws and the mounting brackets for the Toner Replenishing Motor Control Board and the Drawer S/P Board.



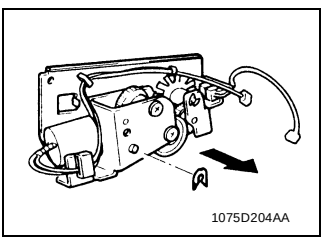
4. Remove the Toner Collecting Bottle. Remove two screws, unplug one connector, and remove the metal plate.
5. Remove four screws to free the Vertical Transport Motor Assy.



6. Remove five screws. Slightly raising the Paper Take-Up Drive Assy, remove it together with the Vertical Transport Motor Assy.

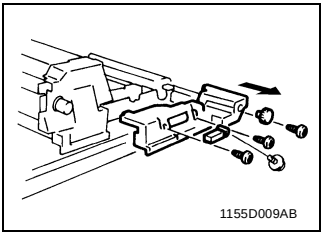


7. Unplug two connectors, remove two screws and the Lift-Up Motor Assy.

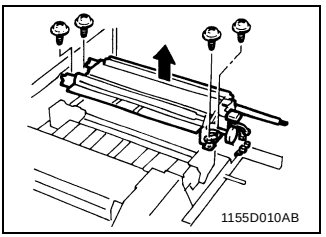


8. Remove the C-clip and the Lift-Up Motor.

7) Removal of the Synchronizing Rollers Unit

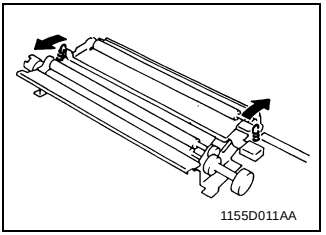


1. Open the Front Lower Door.
2. Lower Lever M4 and slide out the Transport Tray Assy.
3. Remove Misfeed Clearing Knob M3.
4. Remove one screw and Lever M4.
5. Remove three screws and the Transport Unit cover.



6. Unplug two connectors, remove four screws, and remove the Synchronizing Roller Unit.

8) Disassembly of the Synchronizing Rollers Unit

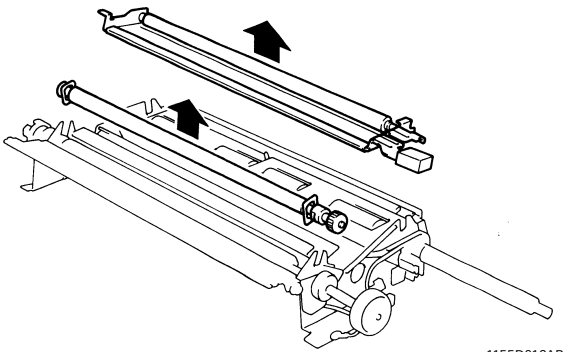


1. Remove the Synchronizing Rollers Unit.
2. Unhook the springs from the front and rear ends of the Misfeed Clearing Guide Plate.

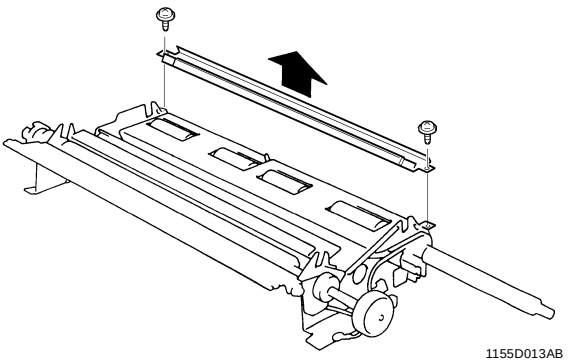
3. Remove the pressure springs at the front and rear, Upper Transport Roller, and Upper Synchronizing Roller.

NOTES

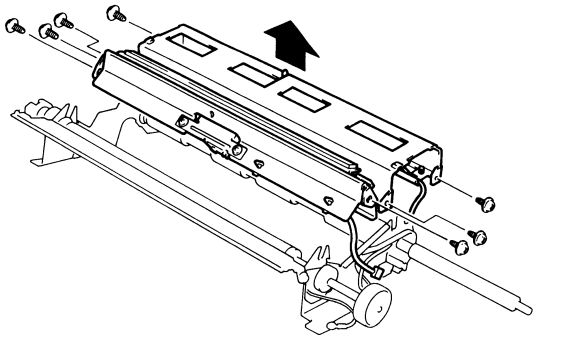
1) Different types of pressure springs are used for the Transport Roller and Synchronizing Roller. Do not confuse them at reinstallation.
2) When the Transport Roller and Synchronizing Roller have been removed, perform Loop Adjustment and Zoom (FD) Adjust.



4. Remove four screws and the Paper Dust Remover.



5. Remove three screws and the Pre-Synchronizing Rollers Guide Plate.
6. Remove four screws and the Pre-Transport Rollers Guide Plate.



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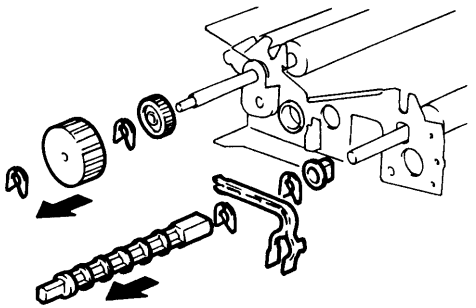
7. Pull out the joint and remove the cover.
8. Remove the two E-rings and pull out the bushing for the Lower Transport Roller.
9. Remove the Misfeed Removal Knob, gear, and one E-ring.



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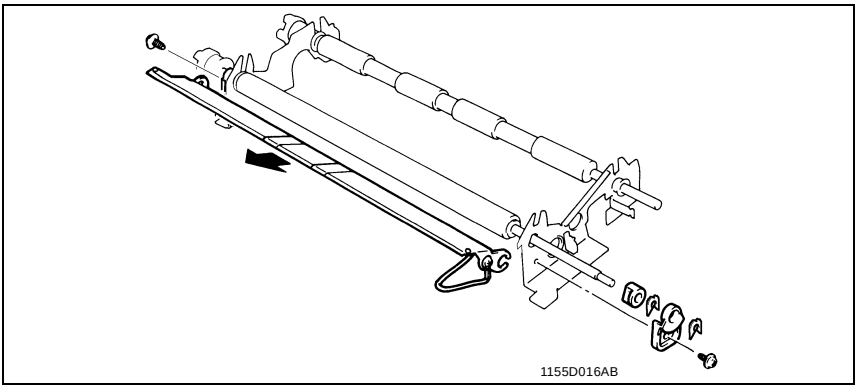
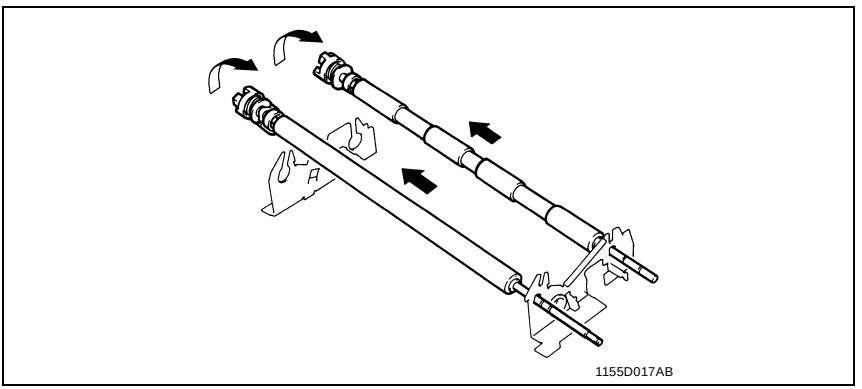
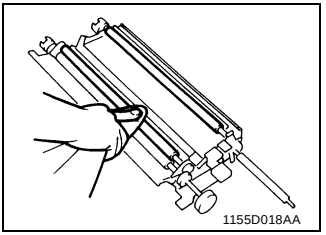
10. Remove two screws and the front and rear holders. Then, remove the Pre-Image Transfer Guide Plate.
11. Snap off one E-ring and remove the bushing from the Lower Synchronizing Roller.



12. Remove the Lower Transport Roller by sliding it in the direction shown.
13. Remove the Lower Synchronizing Roller by sliding it in the direction shown.

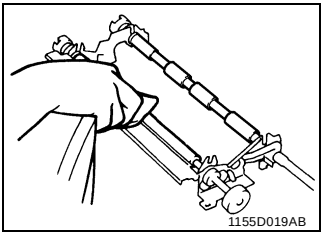


9) Cleaning of the Upper Transport Roller/Upper Synchronizing Roller



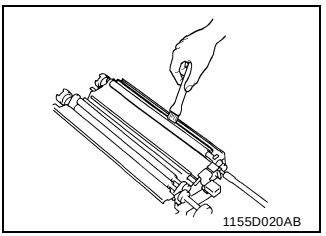
1. Remove the Transport Roller Unit.
2. Using a brush or soft cloth, clean the Upper Transport Roller/Upper Synchronizing Roller.

10) Cleaning of the Lower Transport Roller/Lower Synchronizing Roller



1. Remove the Transport Rollers Unit.
2. Remove the Paper Dust Remover, Synchronizing Roller Front Guide Plate, and Transport Roller Front Guide Plate.
3. Using a brush or soft cloth, clean the Lower Transport Roller/Lower Synchronizing Roller.

11) Cleaning of the Paper Dust Remover



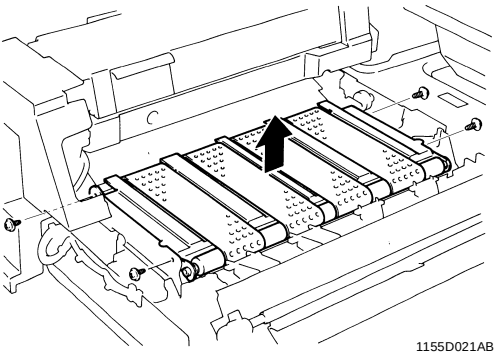
Using a brush, clean the Paper Dust Remover.

12) Removal of the Suction Belts

1. Open the Front Lower Door.
2. Lower Lever M4 and slide out the Transport Tray Assy.
3. Remove Misfeed Clearing Knob M3.
4. Remove one screw and Lever M4.
5. Remove three screws and the Transport Unit cover.
6. Remove four screws and the Suction Unit.

NOTE

At reinstallation, press the Suction Unit against the Suction Base Plate.
(Ensure that the bearing is properly aligned with the radius in the side plate.)



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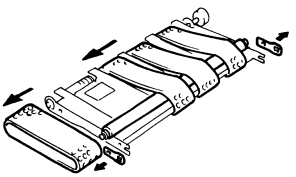

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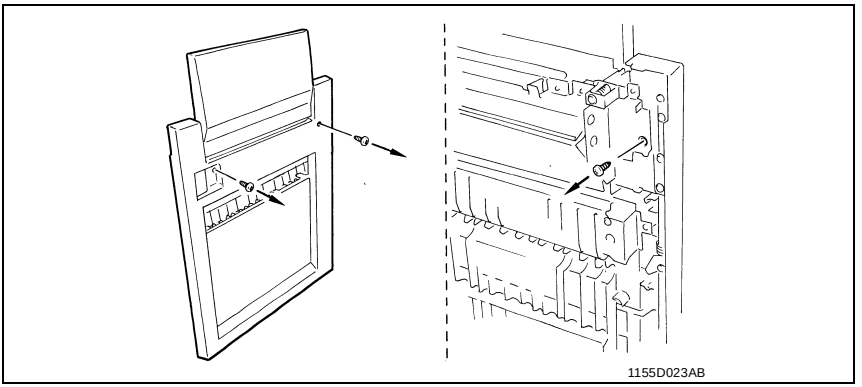
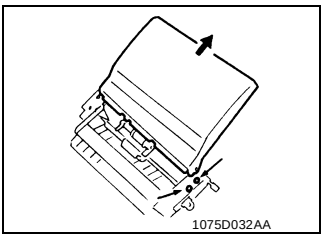
7. Remove the front and rear terminals. Free the Suction Belts Driven Roller from the Suction Deck Frame to remove the Suction Belts.

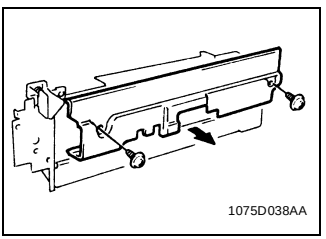
13) Disassembly of the Multi Bypass Unit

1. Remove the Right Door (Multi Bypass Unit).
2. Remove the three screws shown and the Multi Bypass Unit.



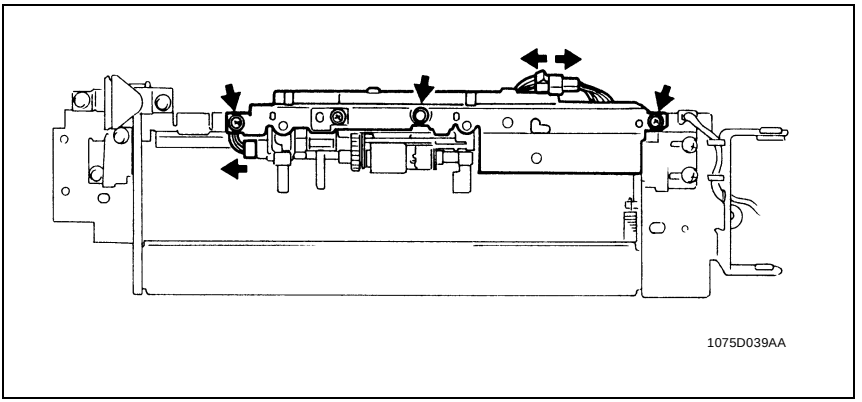


3. Loosen two screws, slide the pivot shaft to the side and remove the Multi Bypass Table.

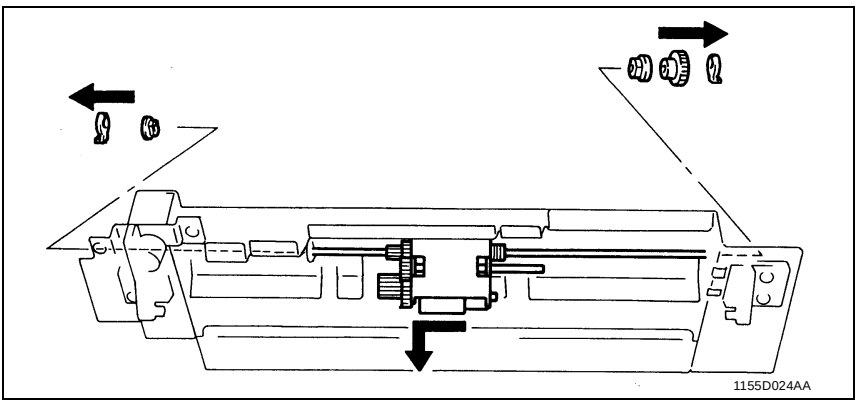


4. Remove two screws and the Manual Feed Paper Pick-Up Solenoid Assy Cover.

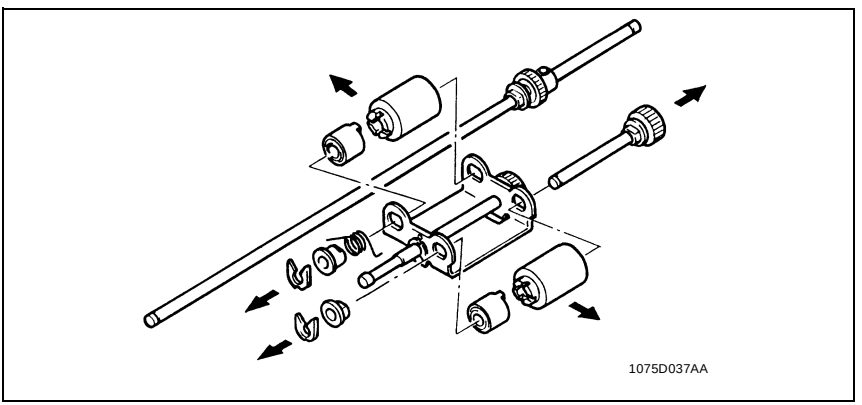
5. Remove three screws, unplug two connectors, and remove the Manual Feed Paper Pick-Up Solenoid Assy.

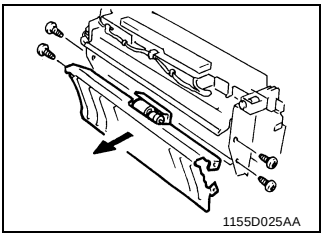


6. Remove the Paper Take-Up Roll Assy by removing the two C-clips, gear, and bushings shown.

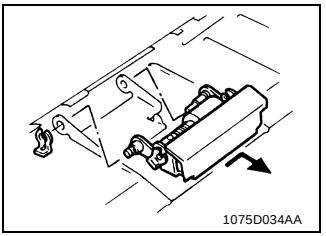


7. Disassemble the Paper Take-Up Roll Assy.

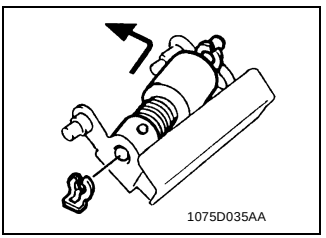




8. Remove four screws and the Guide Plate.

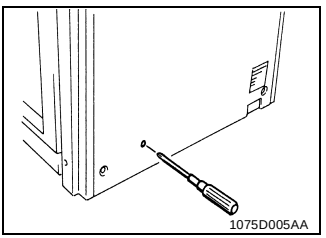


9. Remove the Paper Separator Roll pressure spring.
10. Remove the C-clip and Paper Separator Assy.

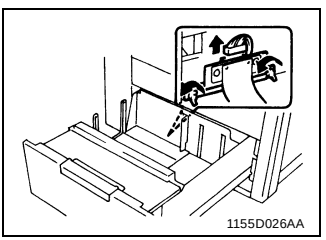


11. Remove the C-clip, slide the bushing off, and remove the Paper Separator Roll Assy.

14) Removal of the 3rd Drawer



1. Press the Paper Descent Key and slide the 3rd Drawer out to the front.
* If pressing the Paper Descent Key does not allow you to slide out the 3rd Drawer, insert a screwdriver or similar object through the hole in the Rear Lower Cover and unlock the drawer.

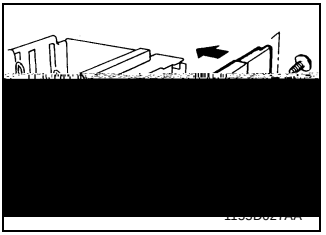


2. Remove four screws on the Slide Rails and pull the 3rd Drawer out to the front.
3. Unplug one connector, loosen two thumbscrews to remove the Connector Board Assy, and remove the 3rd Drawer.

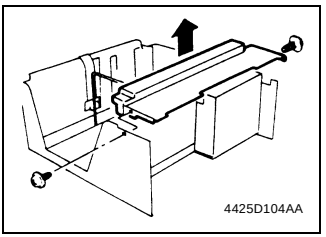
NOTE

During steps 2 and 3, use care not to let the 3rd Drawer fall off the Slide Rails.

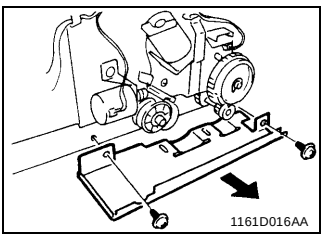
15) Removal of the 3rd Drawer Wires



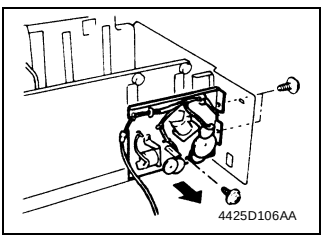
1. Remove the 3rd Drawer.
2. Remove four screws, unplug one connector, and remove the Cover Assy.



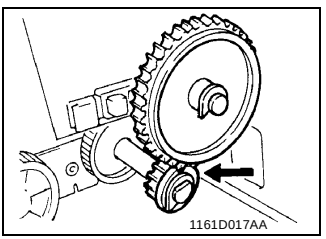
3. Remove two screws and the inner cover.



4. Remove two screws and the drive bottom cover.

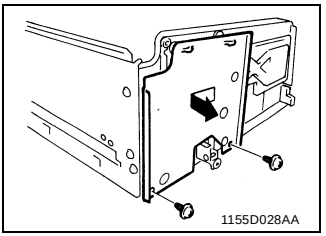


5. Unplug the connector and remove three screws and the drive base plate.

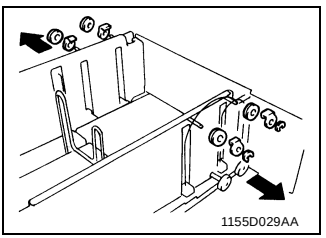


NOTE

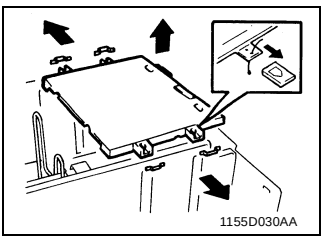
Ensure correct meshing of gears at reinstallation.



6. Remove two screws and the Rear Cover.



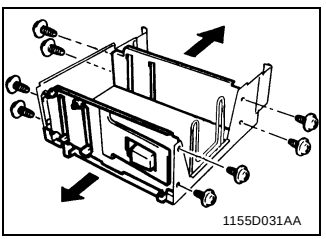
7. Remove two E-rings, four pulley covers and four pulleys.



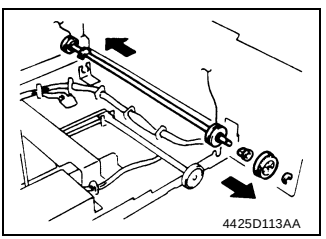
8. Remove four wire holders and the Main Tray.

NOTES

- *Use care not to bend the wire.*
- *Use new wire holders at reinstallation.*

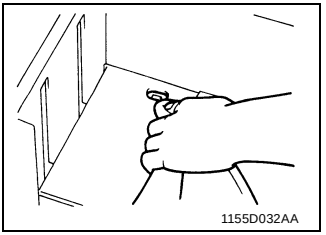


9. Remove four screws each and the Frame Assy at the front and rear.



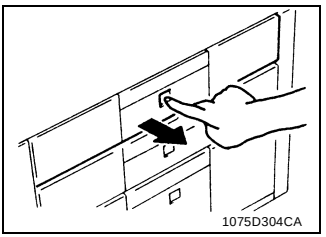
10. Remove the E-ring, slide the bushing off, and remove the Wire Take-Up Pulley Assy.

16) Cleaning of the 3rd Drawer Paper Empty Board

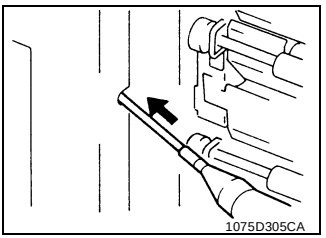


Using a soft cloth, wipe clean the 3rd Drawer Paper Empty Board.

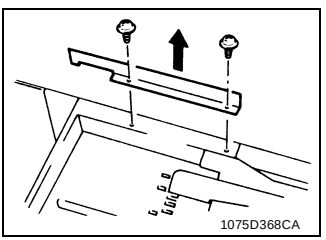
17) Removal of the Paper Drawer (Inch areas only)



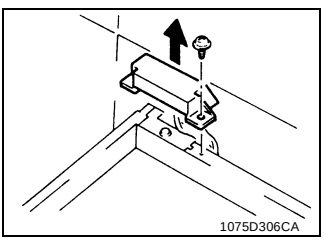
1. Press the Paper Descent Key and slide out the drawer.



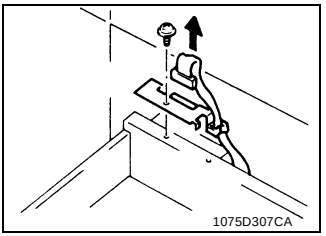
* If pressing the Paper Descent Key does not allow you to slide out the drawer, open the Right Door and push the Lock Release Lever shown in the illustration with a screwdriver or similar object to unlock the drawer.



2. Remove two screws and the metal plate.

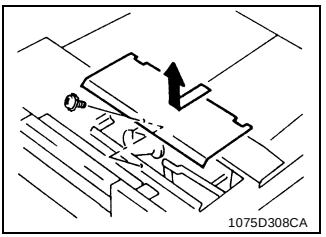


3. Remove one screw and the connector cover.

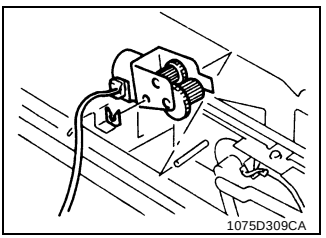


4. Unplug one connector and remove one screw and flat cable mounting bracket.
5. Remove the Front Right Cover, Drawer Stoppers, and the drawer.

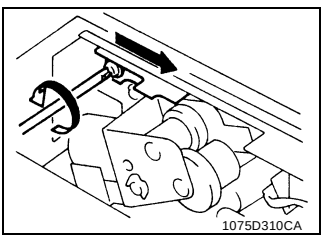
18) Removal of the Lift-Up Motor (Inch areas only)



1. Slide out the drawer.
2. Remove one screw and the Lift-Up Motor Cover.



3. Unplug one connector.
4. Remove one E-ring and the Lift-Up Motor.



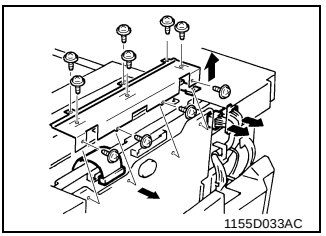
NOTE

If the Lift-Up Motor is replaced with a new one, loosen the screw and, while lightly pressing the Lift-Up Motor fixing bracket in the direction of the arrow, tighten the screw.

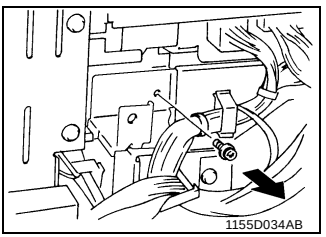
2-4. OPTICAL SECTION

1) Sliding Out the IR Unit

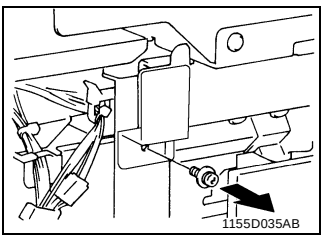
1. Open the Electronic Document Hander.
2. Swing down the Front Upper Door, Front Lower Door.
3. Remove the Right Upper Cover, Upper Right Cover.
4. Remove the Left Upper Cover and Rear Cover.



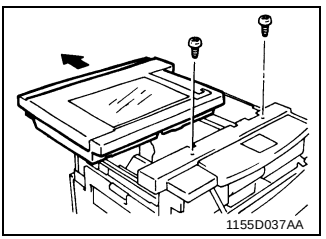
5. Remove ten screws and the IR Unit fixing bracket.
6. Unplug three connectors.



7. Remove one stopper screw on the right of the IR Unit.



8. Remove one stopper screw on the left of the IR Unit.



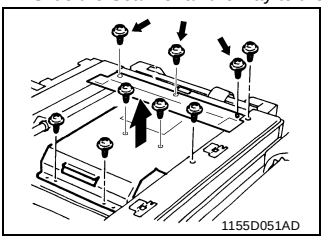
Remove two control panel mounting screws and slide the IR Unit towards the rear..

NOTE

If a hard disk is mounted, slide the IR Unit with care about the cables.

2) Removal of the CCD Unit

1. Open the Electronic Document Hander.
2. Remove the Control Panel.
3. Remove the Original Glass.
4. Slide the Scanner all the way to the left.

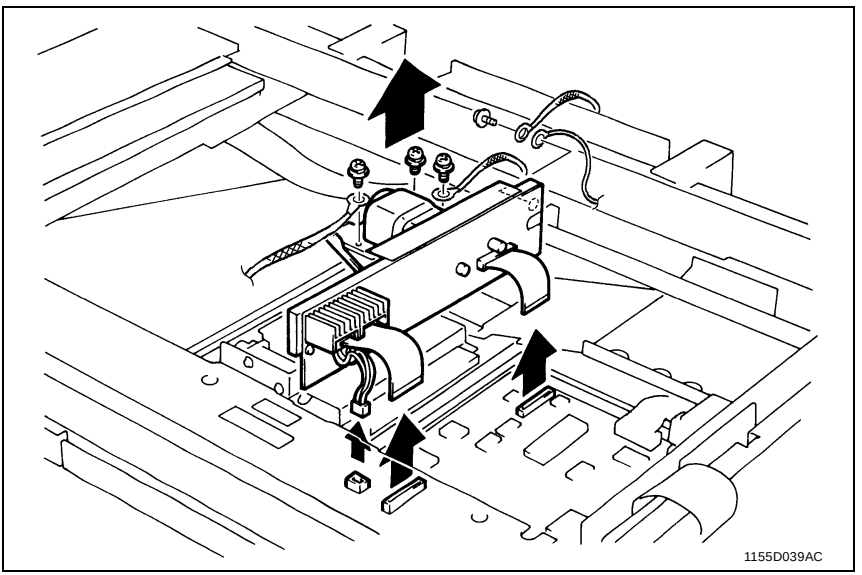


5. Loosen three screws indicated by the arrow.
6. Remove six screws and the board cover.
7. Unplug three connectors from PWB-IB.
8. Remove one screw, three ground wire mounting screws, and the CCD Unit.

NOTES

1) When removing the CCD Unit, remove only the three screws specified. (That is, remove the CCD Unit as one unit.)

2) After the CCD Unit has been reinstalled, perform Scale (CD), Zoom (CD), Position (CD) and S-ADF Mode (CD). In addition to these adjustments, perform Address Adjust and Orig. Size Adjust also, if the CCD Unit has been replaced with a new one.



3) Removal of the PH Unit

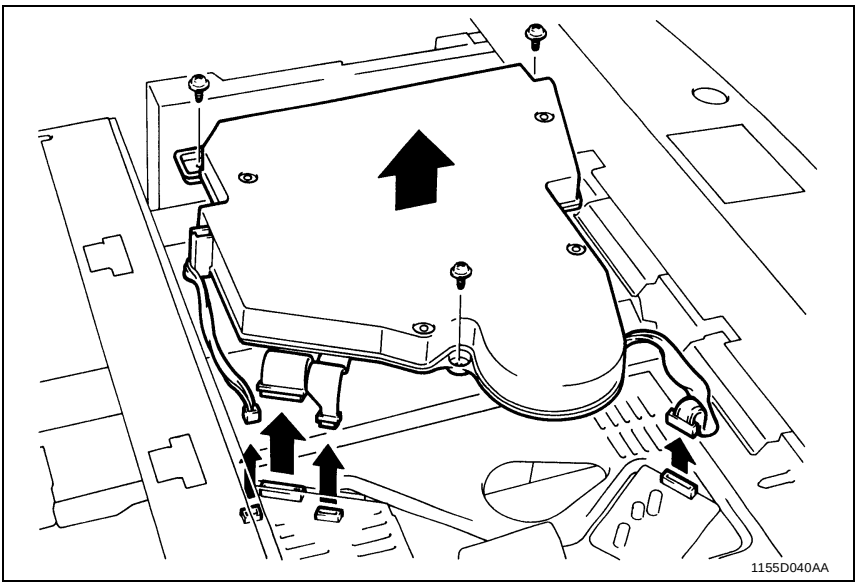
DANGER

> You must conform to these procedures or you are endangering your eyes to exposure by class IIIb laser radiation.

WARNING

> Whenever servicing the PH Unit, make sure that the power cord has been unplugged from the outlet.
> Never attempt to disassemble PWB-J and the PH Unit.

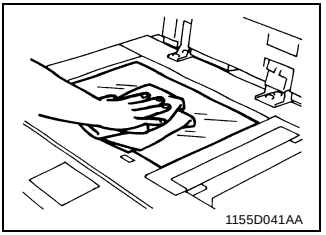
1. Slide out the IR Unit.
2. Unplug one connector from the Polygon Motor Control Board.
3. Unplug three connectors from the PH Board.
4. Remove three screws that secure the PH Unit and remove the PH Unit.



NOTES

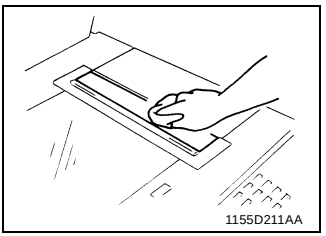
1) The PH Unit is not maintainable. It is to be replaced as an assembly. NEVER open the top cover of the PH Unit to attempt a disassembly.
2) Do not touch the window glass surface on the bottom of the PH Unit. (A dirty window glass results in white streaks in the image.)
3) When the PH Unit has been reinstalled, perform Zoom (FD) Adjust, Registration (CD, FD), Lead Edge Erase, Trail Edge Erase.
4) During installation, view the PH Unit from the above, turn it clockwise until it is stopped, then secure it in position with the screws.

4) Cleaning of the Original Glass



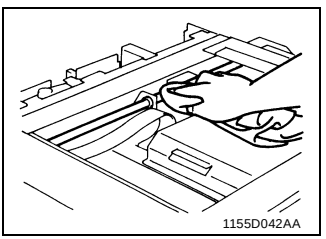
Wipe clean the Original Glass with a soft cloth.

5) Cleaning of the EDH Glass

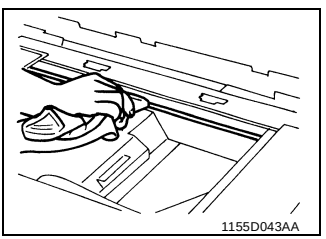


Wipe clean the EDH Glass with a soft cloth.

6) Cleaning of the Scanner Rails/Bushings



1. Remove the Original Glass.
2. Using a soft cloth, wipe clean the Scanner Rails/Bushings (at the front).

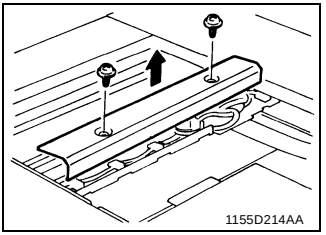


3. Using a soft cloth, wipe clean the Scanner Rails/Bushings (in the rear).

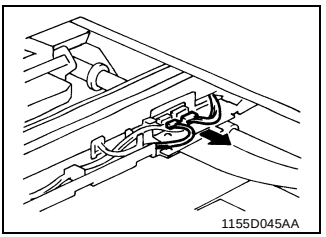
NOTE

Apply lubricant to the Scanner Rails/Bushings after they have been cleaned.

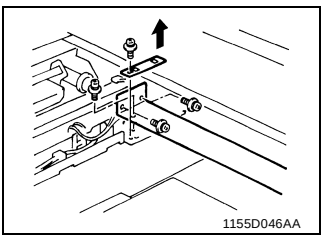
7) Removal of the Scanner



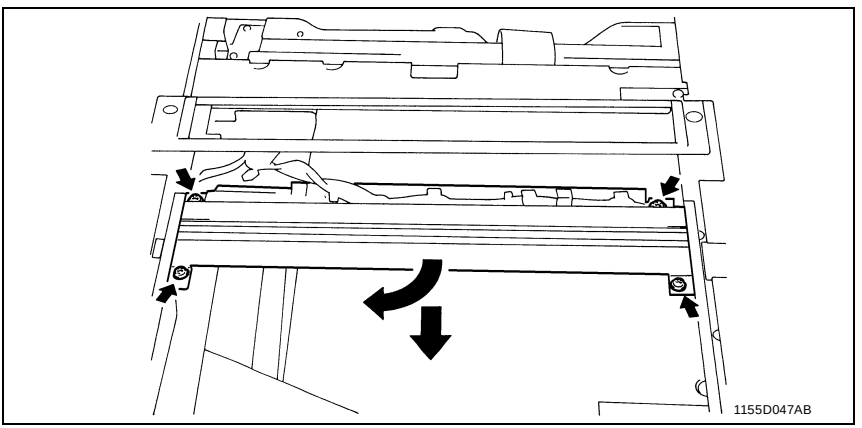
1. Remove the Original Glass.
2. Remove two screws and the Scanner cover.



3. Unplug two connectors.



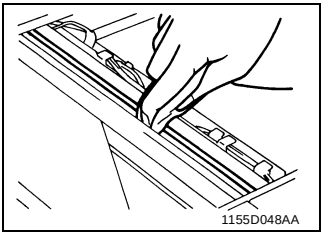
4. Remove one screw and the flat cable holding bracket.
5. Remove three screws and the flat cable.
6. Slide the Scanner to the right. Then, remove the four screws shown and turn the Scanner to the left to remove it from the copier.



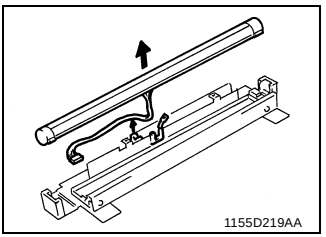
NOTE

When the Scanner have been replaced, perform Address Adjust.

8) Cleaning of the Exposure Lamp



1. Remove the Scanner Cover.
2. Using a soft cloth dampened with alcohol, clean the lamp by gently wiping its surface in one direction.



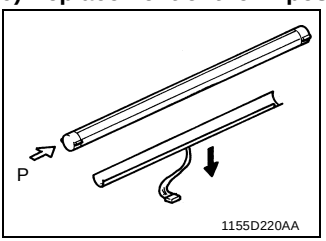
Replacement

1. Remove the Scanner Cover.
2. Remove the heater harness from the cord clamp and edge cover.
3. Turn the Exposure Lamp in the direction of the arrow to remove it from the holder, then replace it with a new one.

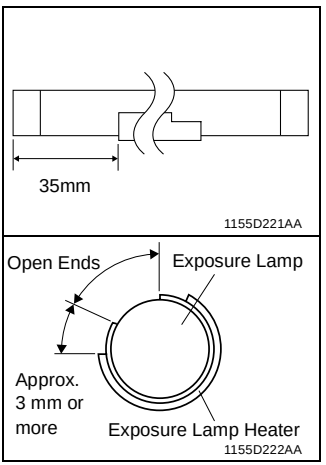
NOTE

Do not touch the Exposure Lamp with bare hands when cleaning or replacing it. If the lamp has been replaced, perform Address Adjust.

9) Replacement of the Exposure Lamp Heater



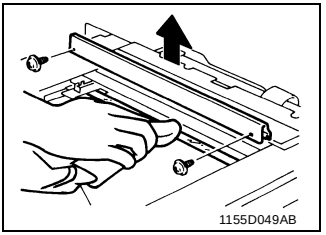
1. Remove the Scanner Cover.
2. Remove the Exposure Lamp.
3. Remove the Exposure Lamp Heater from the Exposure Lamp and replace it with a new one.



NOTE

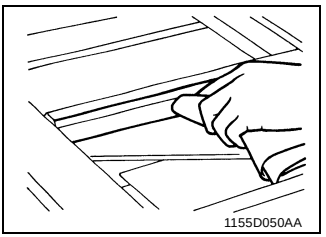
Make sure of the precautions given in illustrations on the left when mounting the Exposure Lamp Heater.

10) Cleaning of the 1st, 2nd, and 3rd Mirrors



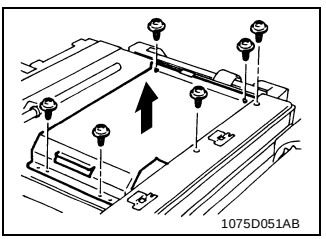
1. Remove the Original Glass.
2. Remove two screws and the Reflector Mirror Assy.
3. Wipe clean the 1st Mirror with a soft cloth.

> ***NOTE***
>
> *Ensure that the mirror is not moved out of its correct position when wiped clean.*

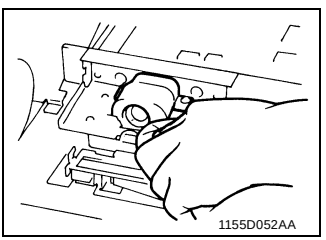


4. Wipe clean the 2nd and 3rd Mirrors with a soft cloth.

11) Cleaning of the Lens



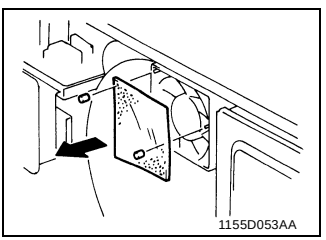
1. Remove the Control Panel.
2. Remove the Original Glass.
3. Slide the Scanner all the way to the left.
4. Remove six screws and the board cover.



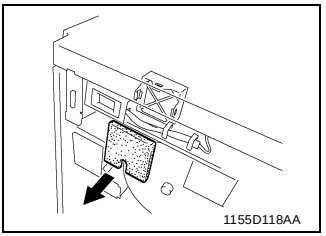
5. Wipe clean the Lens with a soft cloth.

> ***NOTE***
>
> *When the Lens has been cleaned, perform Exp. Lamp address and Orig. Size Adjust.*

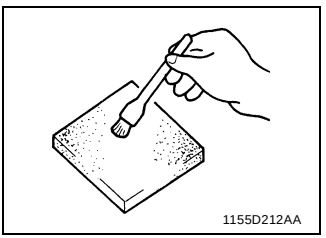
12) Replacement of the Cooling Fan Filters



1. Remove the Rear Cover.
2. Remove two rubber stoppers and the PH Section Cooling Fan Filter.

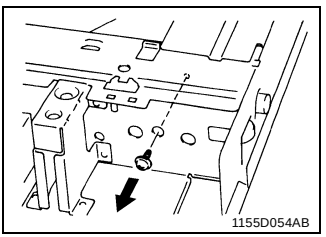


1. Remove the Rear Cover.
2. Remove the IR Section Cooling Fan Filter.

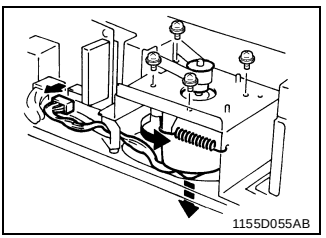


3. Using a brush or a vacuum cleaner, clean the Cooling Fan Filters.

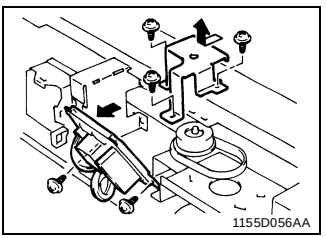
13) Removal of the Scanner Drive Cables



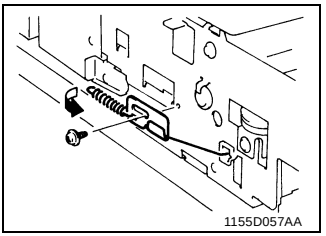
1. Remove the Electronic Document Hander, Rear Cover, Upper Rear Cover, Right Upper Cover, Upper Right Cover, Left Upper Cover, Upper Left Cover, and Original Glass.
2. Remove the Scanner.
3. Move the Scanner to the location shown. Then, remove the Scanner positioning screws, one each at the front and rear, and free the Scanner fixing bracket.



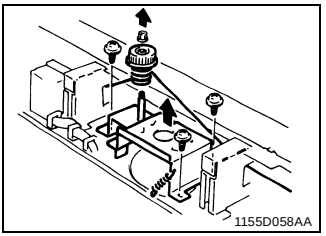
4. Slide out the IR Unit.
5. Unplug one connector, unhook the spring, and remove four screws and the Scanner Motor.



6. Remove two screws to free the SCP Board.
7. Remove three screws and the drive support plate.

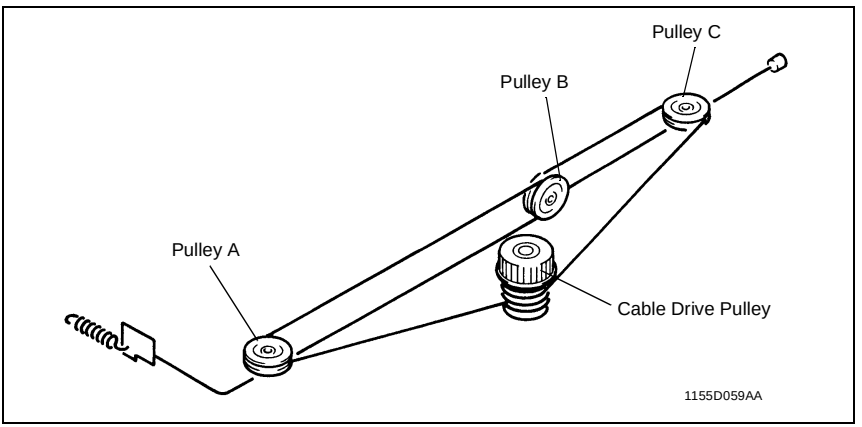


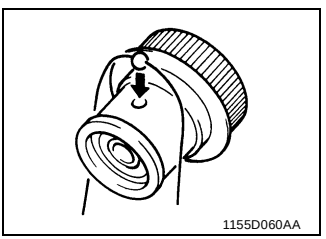
8. Remove one screw, unhook one spring, and remove the Scanner Drive Cable.



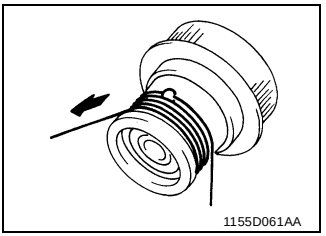
9. Remove three screws and the drive side plate.
10. Remove the Scanner Drive Pulley.

14) Winding of the Scanner Drive Cables.

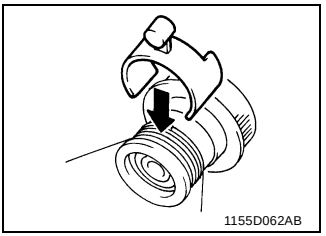




1. Position the round bead of the Scanner Drive Cable in the pulley as shown.



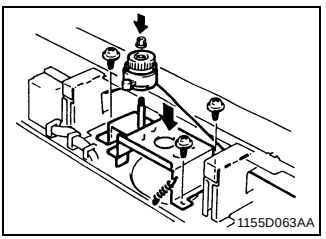
2. Wind the length of the cable on the cylindrical stopper end counterclockwise four turns around the pulley, from the back to the front side.



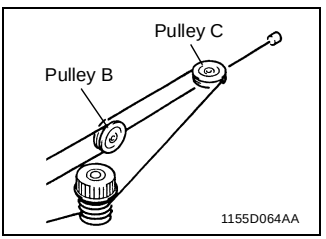
3. Wind the length of the cable on the mounting bracket end clockwise four turns from the front to the back side, then slip the Cable Holding Jig onto the pulley to secure the cable in position.

NOTE

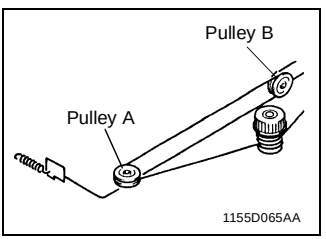
Make sure that no part of the cable rides on the other.



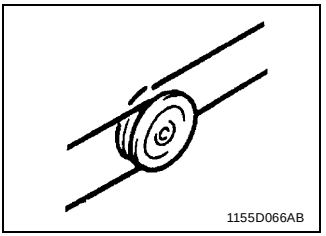
4. Fit the Cable Drive Pulley to the drive side plate and mount the pulley to the copier.



5. Wind the length of the cable on the cylindrical stopper end around pulleys C and B and secure its end to the frame.

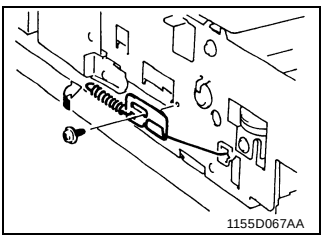


6. Wind the length of the cable on the mounting bracket end around pulleys A and B.

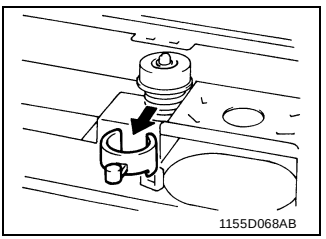


NOTE

When winding the cable around pulley B, place the length of the cable on the cylindrical stopper end at the front and the length of the cable on the mounting bracket end in the rear.



7. Fit the cable into the Cable Guide Groove, hook on the spring, and secure it in position.



8. Remove the Cable Holding Jig.

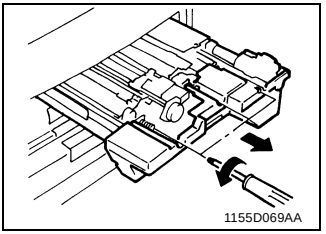
9. Mount the drive support plate.
10. Mount the SCP Board.
11. Install the Scanner Motor and timing belt. Then, make the Scanner Motor timing belt adjustment.
12. Mount the Scanner and adjust the positions of the Scanner and 2nd/3rd Mirrors Carriage.

NOTE

When the Scanner Drive Cables have been replaced, perform Zoom (FD) Adjust, Zoom (FD) Manual, Scale (FD) and Pos./Zoom (FD).

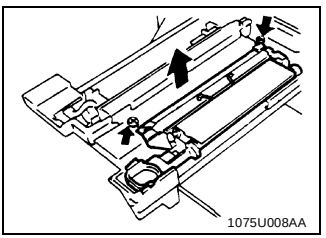
2-5. PC UNIT

1) Sliding Out the PC Unit



1. Open the Front Lower Door.
2. Lower Lever M4.
3. Loosen three screws and slide out the PC Unit.

2) Removal of the Developing Unit

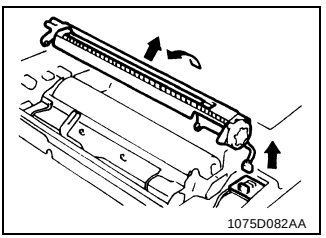


1. Slide out the PC Unit.
2. Loosen two screws and remove the Developing Unit.

NOTE

For the Developing Unit, see p. D-51.

3) Removal of the PC Drum Charge Corona

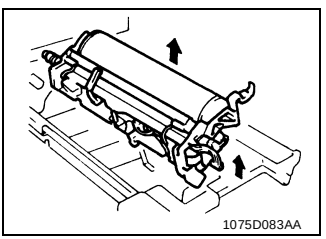


1. Remove the Developing Unit.
2. Unplug one connector and remove the PC Drum Charge Corona.

NOTE

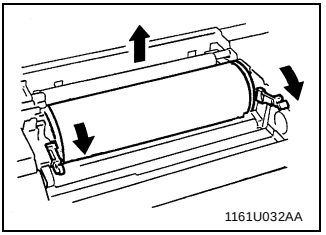
For the PC Drum Charge Corona, see p. D-48.

4) Removal of the Cleaning Unit



1. Remove the PC Drum Charge Corona.
2. Unplug one connector and remove the Cleaning Unit.

5) Removal of the PC Drum

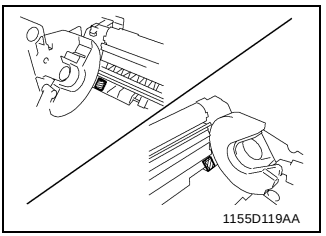


1. Remove the PC Drum Charge Corona.
2. Unlock two PC Drum Lock Levers and remove the PC Drum.

NOTE

When the PC Drum has been replaced, clear the count of PC Drum 3 of PM Counter 2/4 available from Tech. Rep. mode and perform the F5 operation (AIDC Sensor Adjustment).

6) Replacement of the Cleaning Felt Pads

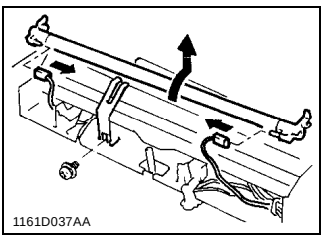


1. Slide out the PC Unit and remove the Cleaning Unit.
2. Remove the PC Drum.
3. Peel off the Cleaning Felt Pads and replace them with new ones.

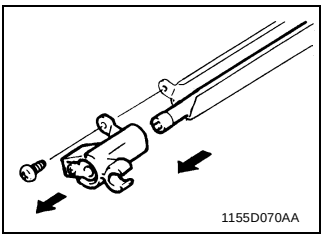
NOTE

When the Cleaning Felt Pad has been replaced, clear Waste Toner Count of Consumables Counter available from Tech. Rep. mode.

7) Removal of the Main Erase Lamp



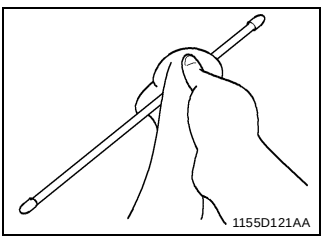
1. Remove the PC Drum.
2. Remove one screw and flat spring.
3. Unplug two connectors and remove the Main Erase Lamp holder.



4. Remove one screw and the Main Erase Lamp.

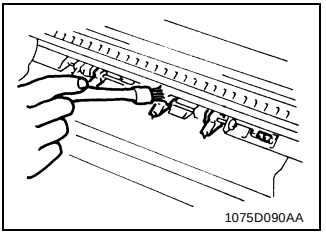
NOTE

When the Main Erase Lamp has been replaced, perform the F5 operation (AIDC Sensor Adjustment).



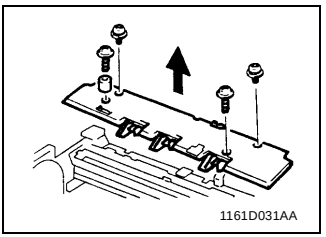
5. Using a soft cloth dampened with alcohol, clean the lamp by gently wiping its surface in one direction.

8) Cleaning of the Toner Antispill Seal, AIDC Sensor, and PC Drum Paper Separator Fingers



1. Remove the PC Drum.
2. Using a brush or soft cloth, clean the Toner Antispill Seal, AIDC Sensor, and PC Drum Paper Separator Fingers.

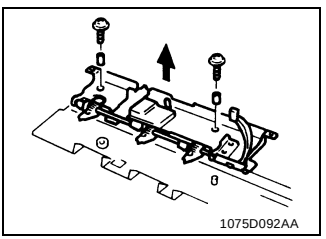
9) Disassembly of the PC Drum Paper Separator Fingers Assy



1. Remove the PC Drum.
2. Unplug one connector and remove the Cleaning Unit.
3. Turn over the Cleaning Unit, remove four screws, unplug one connector, and remove the PC Drum Paper Separator Fingers Assy.

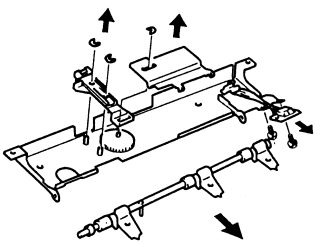
NOTE

One of the screws is provided with a collar. Be careful not to lose it.



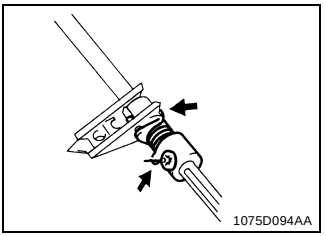
4. Remove two screws and the PC Drum Paper Separator Fingers mounting bracket.

5. Remove the PC Drum Paper Separator Fingers and AIDC Sensor as illustrated below.

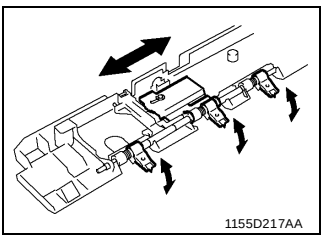


NOTE

During removal and reinstallation of the PC Drum Paper Separator Fingers, use care not to damage the tips of the fingers (scratches, bend, etc.).
Be also careful not to hurt yourself with the tips of the fingers.



6. When reinstalling the PC Drum Paper Separator Fingers, be sure to rehook the torsion spring correctly as shown. After reinstallation, check that the fingers move smoothly.

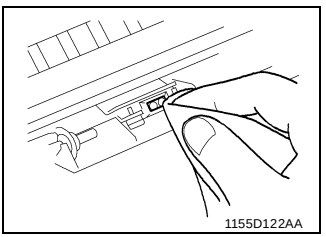


7. Move the separator fingers and the pressure lever laterally to ensure that they move smoothly.

NOTE

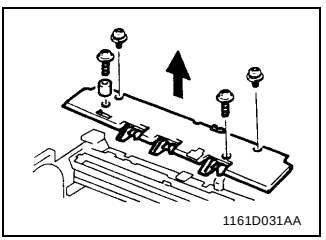
Whenever the PC Drum Paper Separator Fingers have been removed and reinstalled, be sure to adjust the position of the PC Drum Paper Separator Fingers. For details, see p. D-79.

10) Cleaning of the AIDC Sensor



1. Slide out the PC Unit.
2. Remove the PC Drum.
3. Using a soft cloth dampened with alcohol, wipe clean the AIDC Sensor.

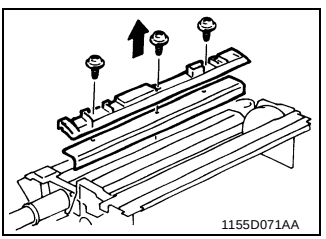
11) Replacement of the Toner Antispill Seal



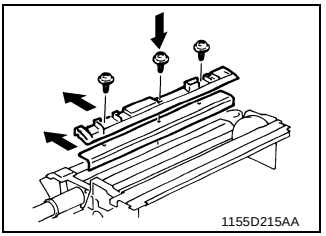
1. Remove the PC Drum.
2. Remove the Cleaning Unit.
3. Turn over the Cleaning Unit, remove four screws, unplug one connector, and remove the PC Drum Paper Separator Fingers Assy.

NOTE

One of the screws is provided with a collar. Be careful not to lose it.



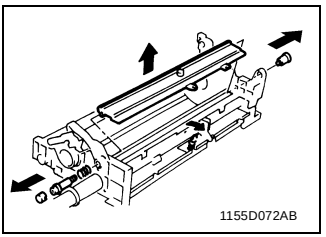
4. Remove two screws shown.
5. Remove one screw and the Toner Antispill Seal and replace the seal with a new one.



NOTE

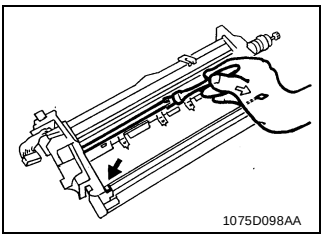
When securing the Toner Antispill Seal, try to press it in the direction of the arrow.

12) Replacement of the Cleaning Blade

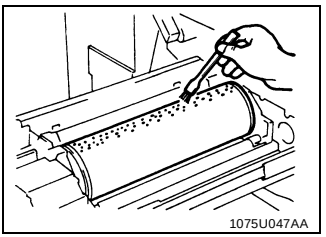


1. Remove the PC Drum and Main Erase Lamp.
2. Unhook the spring.
3. Remove two shoulder screws, one spring, and one cap, and remove and replace the Cleaning Blade.

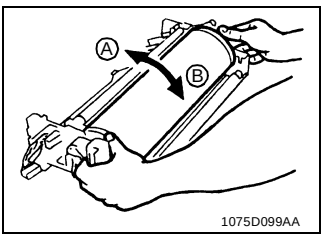
When the Cleaning Blade has been replaced, perform the following steps.



1. Before installing the PC Drum, apply lubricant (shipped with the new Cleaning Blade) to the cleaning felt pads at both ends of the PC Drum. Also apply toner to the entire surface of the Cleaning Blade.

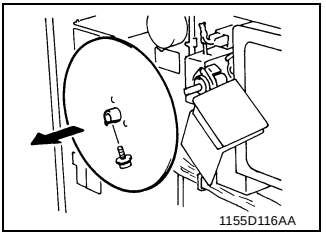


2. Install the PC Drum and apply a thin coat of toner to the surface of the PC Drum.

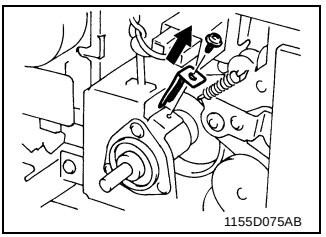


3. Holding onto both ends of the PC Drum, turn the PC Drum 1/2 turn in the direction of arrow A, then turn it one turn in the direction of arrow B.
4. Reinstall the PC Unit.

13) Replacement of the PC Ground Plat

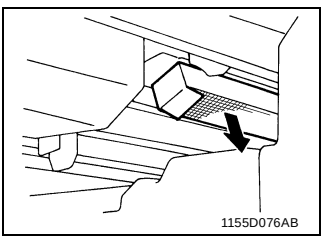


1. Remove the Rear Cover.
2. Remove three screws and the Flywheel.



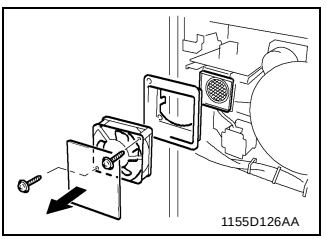
3. Remove one screw and the PC Ground Plate. Replace the PC Ground Plate.

14) Replacement of the Ozone Filters

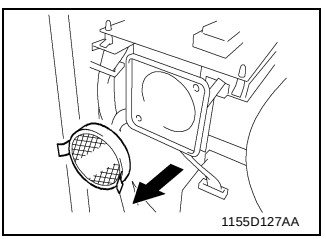


PC Drum Charge Corona

1. Slide out the PC Unit.
2. Pull out the Ozone Filter and replace it.



3. Remove the Rear Cover.
4. Peel off the filter and remove two screws and the Toner Suction Fan Assy.



5. Pull out the Ozone Filter and replace it.

NOTE

When mounting the Ozone Filter, use care not to allow the films on both ends of the filter to be in contact with the fan.

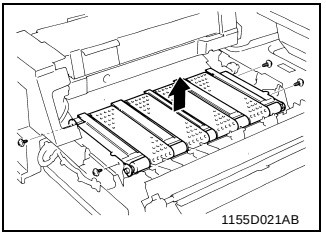
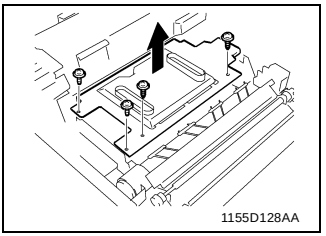
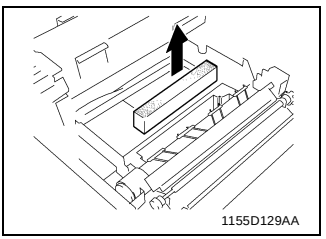


Image Transfer/Paper Separator Coronas

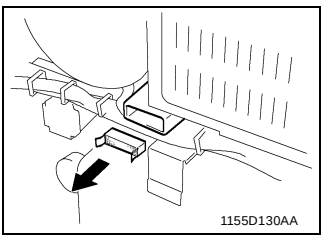
1. Slide out the Transport Tray Assy.
2. Remove four screws and the Suction Deck.



3. Remove four screws and Suction Fan Assy.

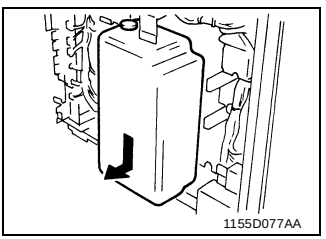


4. Pull out the Ozone Filter and replace it.



5. Remove the Rear Cover.
6. Pull out the Ozone Filter and replace it.

15) Replacement of the Toner Collecting Bottle



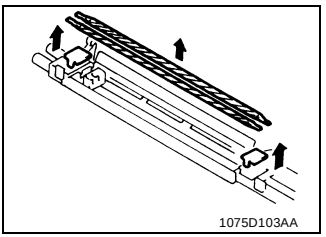
1. Remove the Rear Cover.
2. Remove the Toner Collecting Bottle and replace it.

NOTE

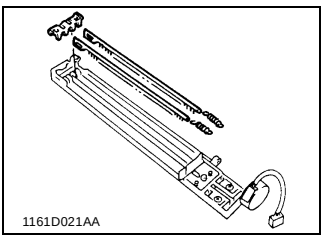
When the Toner Collecting Bottle has been replaced, clear the "Toner Collect" count of "Consumable" available from "Counter" under the Tech. Rep. mode.

2-6. PC DRUM CHARGE CORONA AND IMAGE TRANSFER/PAPER SEPARATOR CORONAS

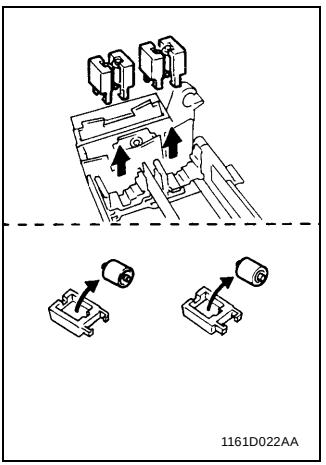
1) Replacement of the PC Drum Charge Corona Grid Mesh, PC Drum Charge Comb Electrode and Cleaners



1. Remove the PC Drum Charge Corona.
2. Remove the grid meshes.
3. Remove the holder covers at the front and rear.

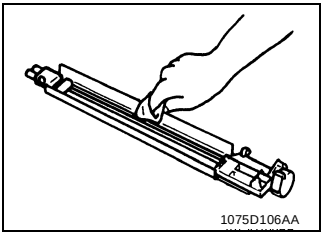


4. Remove the cleaner cover.
5. Extend the springs and remove the comb electrodes.



6. Remove the cleaner assy and remove the cleaning rolls.

2) Cleaning of the PC Drum Charge Corona Housing

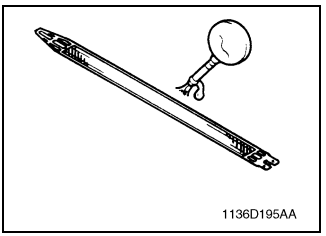


Using a soft cloth dampened with alcohol, wipe clean the corona housing.

NOTE

Use care when cleaning the housing, as it is easy to deform.

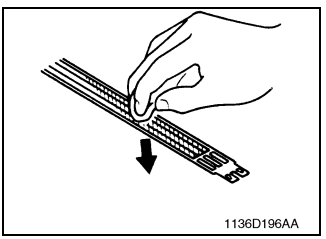
3) Cleaning and Replacement of the Grid Mesh



Blow all foreign matter off the Grid Mesh with a blower brush.

NOTE

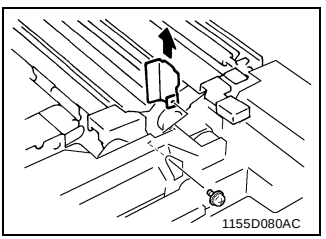
If the blower brush is not effective in cleaning the Grid Mesh, use a soft cloth dampend with alcohol to clean serious contamination.



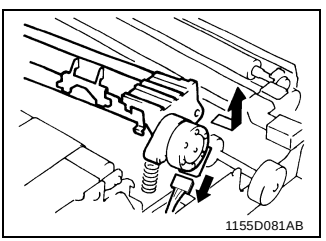
NOTE

Place the Grid Mesh on a flat surface and sweep the cloth along the mesh.
Do not touch the cleaned Grid Mesh with bare hands.

4) Removal of the Image Transfer/Paper Separator Coronas

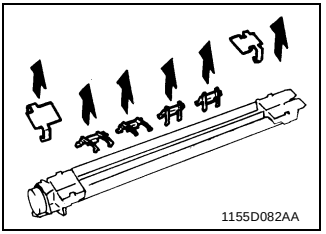


1. Open the Front Lower Door.
2. Lower Lever M4 and slide out the Transport Tray Assy.
3. Remove one screw and the fixing bracket.

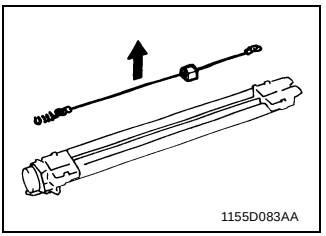


4. Remove the Image Transfer/Paper Separator Coronas.
5. Unplug the connector of the Image Transfer/Paper Separator Charge Wire Cleaning Motor.

5) Replacement of the Image Transfer/Paper Separator Corona Wires and Wire Cleaners

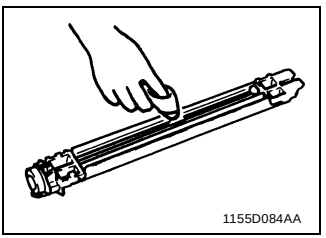


1. Remove the Image Transfer/Paper Separator Coronas.
2. Remove the holder covers at the front and rear and four paper guides.



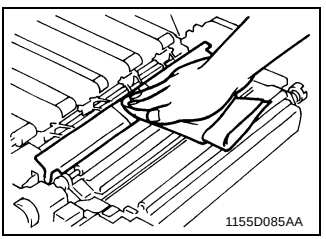
3. Extend the corona wire spring and remove the corona wire and wire cleaner.

6) Cleaning of the Image Transfer/Paper Separator Coronas Housing



Using a soft cloth dampened with alcohol, wipe the housing clean of dirt.

7) Cleaning of the Pre-Image Transfer Guide Plate



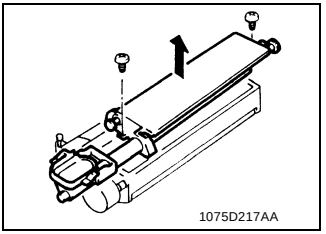
Using a soft cloth dampened with alcohol, wipe the guide plate clean of dirt.

NOTES

1) Use care not to peel off the seal at the center of the guide plate.
2) Be also careful not to remove the plastic parts on both ends of the guide plate.

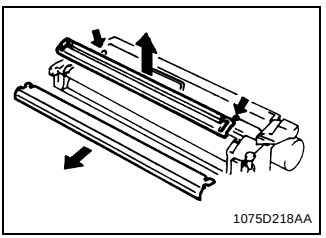
2-7. DEVELOPING UNIT

1) Removal of the Sub Hopper

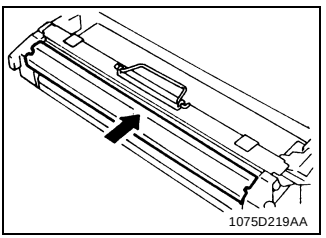


1. Remove the Developing Unit.
2. Remove two screws and the Sub Hopper.

2) Disassembly of the Developing Unit and Replacement of Parts

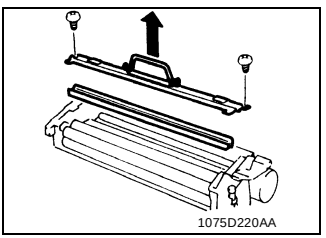


1. Remove the Sub Hopper.
2. Loosen two screws and the Developer Scattering Prevention Plate.
3. Remove the guide.



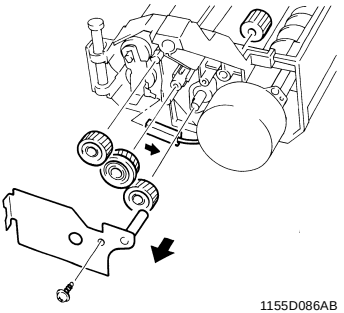
NOTE

When reinstalling the Developer Scattering Prevention Plate, press it against the Developing Unit.



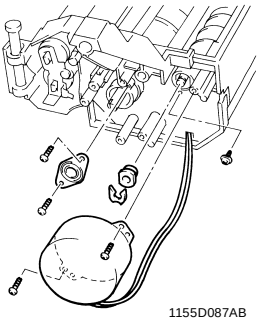
4. Remove two screws and the handle.
5. Remove the Doctor Blade.

6. Remove one screw and the gear holder at the front of the Developing Unit.
7. Unplug one connector and remove four gears.



1155D086AB

8. Remove two screws and the Sub Hopper Toner Replenishing Motor.
9. Snap off the E-ring and remove the bushing for the Developer Conveying/Agitating Screw.
10. Remove two screws and the bushing for the Bucket Roller.

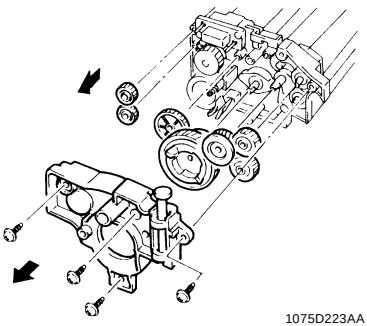


1155D087AB

NOTE

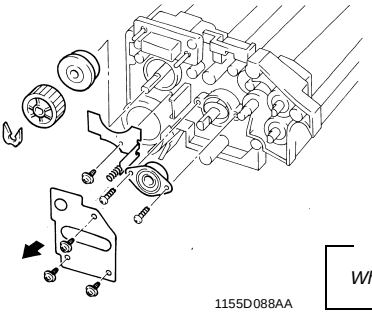
When reinstalling the bushing, twist it into position.

11. Remove four screws and the gear holder at the rear of the Developing Unit.
12. Remove seven gears (three shafts).



1075D223AA

13. Remove the E-ring and gear. Remove one screw and the bias contact plate. Then, remove the bushing for the Developer Conveying/Agitating Screw.
14. Remove three screws and the cord clamp.
15. Remove two screws and the bushing for the Bucket Roller.

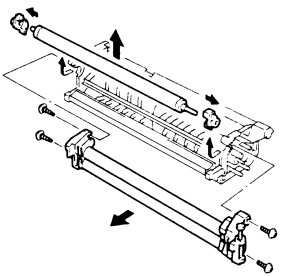


1155D088AA

NOTE

When reinstalling the bushing, twist it into position.

16. Remove two screws each at the front and rear and the 1st/2nd Sleeve/Magnet Rollers Assy.
17. Remove the Toner Replenishing Sleeve/Magnet Roller and the bushings on the front and rear.

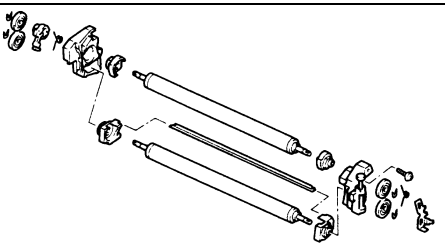


1075D225AA

NOTE

When reinstalling the bushings, twist it into position.

18. Disassemble the 1st/2nd Sleeve/Magnet Rollers Assy as illustrated below.

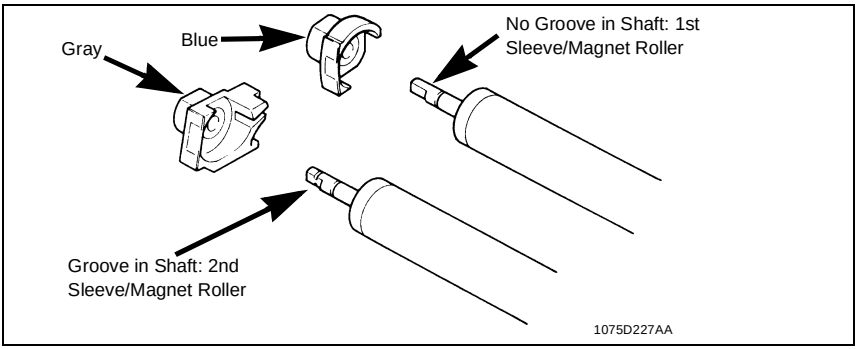


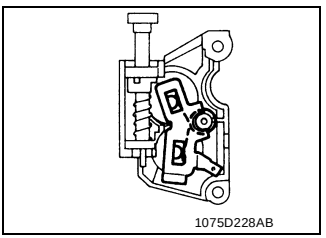
1075D226AB

NOTE

When reinstalling the bushings, twist it into position.

* Identifying the 1st Sleeve/Magnet Roller and its Bushing from the 2nd Sleeve/Magnet Roller and its Bushing

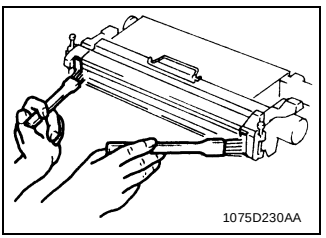




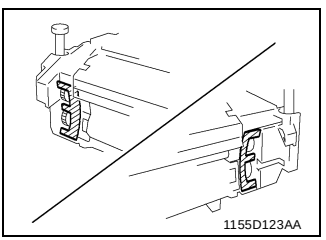
NOTE

Install the spring and developing bias terminal as illustrated on the left

3) Cleaning and Replacement of the Developer Side Seals



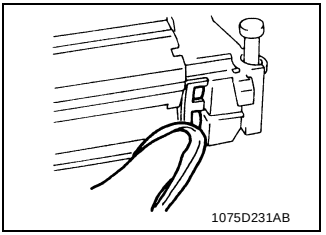
Using a brush, whisk dust and dirt off the Developer side seals.



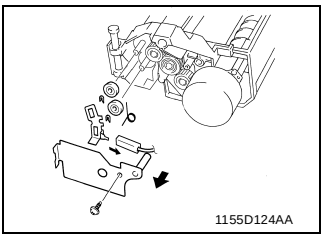
Replacement

1. Remove the Developing Unit.
2. Peel off the Developer side seals and replace them with new ones.

4) Cleaning and Replacement of the Ds Positioning Collars

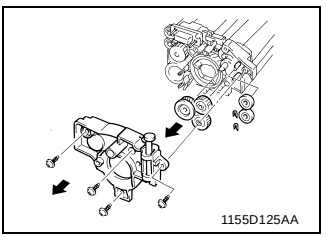


Using a soft cloth dampened with alcohol, wipe the Ds Positioning Collars clean of dirt.



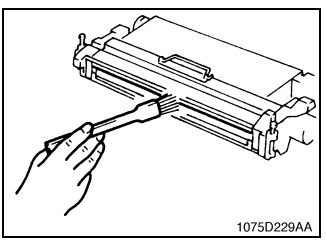
Replacement

1. Remove one screw; then, remove the gear holder from the front side of the Developing Unit.
2. Unplug one connector and remove one screw and bias terminal.
3. Remove the two E-rings, one each from each of the front Ds Positioning Collars. Then, remove and replace the front Ds Positioning Collars.



4. Remove four screws; then, remove the gear holder from the rear side of the Developing Unit.
5. Remove three gears.
6. Remove the two E-rings, one each from each of the rear Ds Positioning Collars. Then, remove and replace the rear Ds Positioning Collars.

5) Cleaning and Replacement of the Developer Scattering Prevention Seal

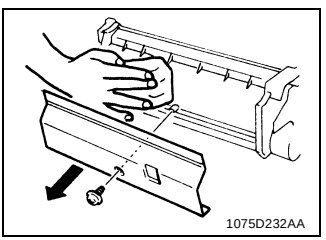


Using a brush, whisk dust and dirt off the seal.

NOTE

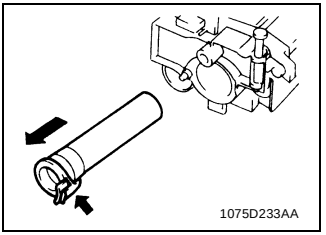
To replace the seal, first remove the Developer Scattering Prevention Plate.

6) Cleaning of the Duct



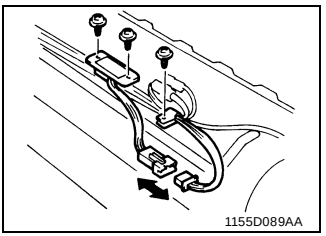
1. Remove one screw and the duct cover.
2. Using a brush, whisk dust and dirt off the duct and the exterior of the Developing Unit and, using a soft cloth dampened with alcohol, wipe clean the surfaces.

7) Replacement of the Developer Scattering Prevention Filter



Press the lock of the Developer Scattering Prevention Filter, slide out and replace the Developer Scattering Prevention Filter.

8) Removal of the ATDC Sensor

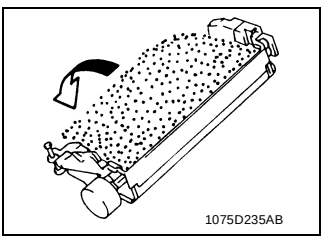


1. Remove the duct cover.
2. Unplug one connector, remove three screws and the ATDC Sensor.

NOTE

When the ATDC Sensor has been replaced, change the developer at the same time. In addition, perform the F8 (ATDC Sensor Adjustment) and F5 (AIDC Sensor Adjustment) operations.

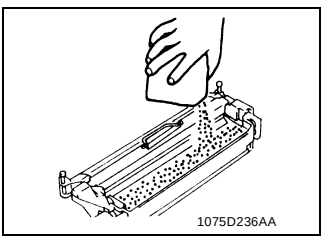
9) Replacement of the Developer



1. Remove the Sub Hopper Assy, Developer Scattering Prevention Plate, guide, handle, and the Doctor Blade.
2. Tilt the Developing Unit and, turning the drive gear, dump the developer out of the unit. Vacuum the developer remaining in the unit.

NOTE

Since vacuuming the developer generates static electricity, be sure first to remove the ATDC Sensor.



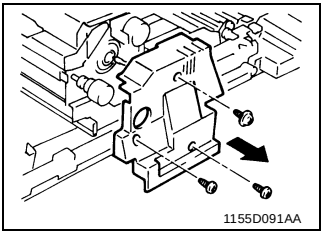
3. Reinstall the Doctor Blade, handle, guide, and Developer Scattering Prevention Plate
4. Pour fresh Starter evenly into the chamber.
5. Reinstall the Sub Hopper Assy and install the Developing Unit in the copier.

NOTE

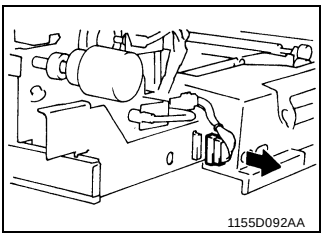
When the developer has been replaced, clear the count of Developer of PM Counter 3/4 available from Tech. Rep. mode and perform the F8 (ATDC Sensor Adjustment) and F5 (AIDC Sensor Adjustment) operations.

2-8. FUSING UNIT

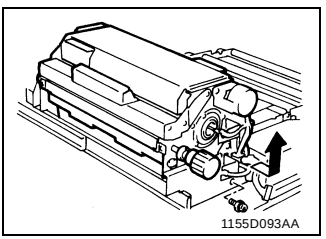
1) Removal of the Fusing Unit



1. Swing down the Front Lower Door.
2. Lower Lever M4 and slide out the Transport Tray Assy.
3. Remove three screws and the Fusing Front Cover.



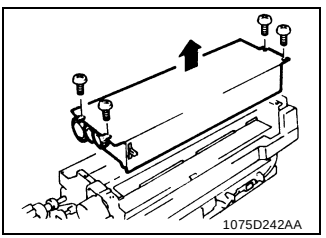
4. Unplug one connector.



5. Remove one screw and the Fusing Unit.

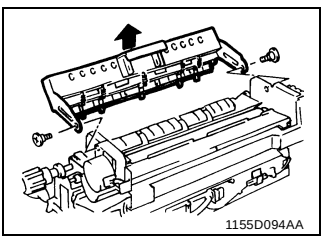
> ***NOTE***
>
> *When the Fusing Unit has been replaced, clear the count of Fusing Unit of PM Counter 4/4 and Waste Toner-Count of Consumables Counter available from Tech. Rep. mode.*

2) Disassembly of the Fusing Unit and Replacement of Parts



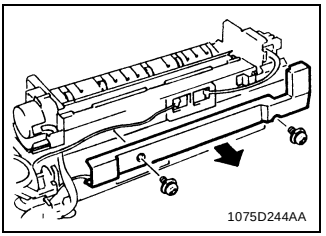
1. Remove the Fusing Unit.
2. Remove four screws and the Web Roller Assy.

> ***NOTE***
>
> *For the Web Roller Assy, see p. D-63.*

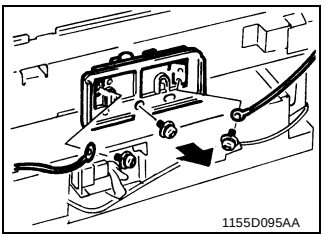


3. Remove one screw each at the front and rear and the Upper Paper Separator Fingers Assy.

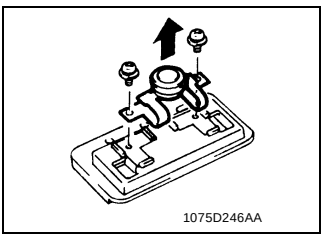
> ***NOTE***
>
> *For the Upper Paper Separator Fingers Assy, see p. D-61.*



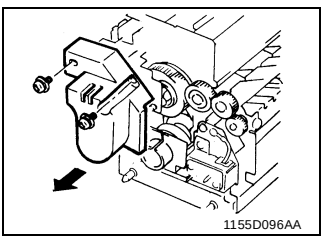
4. Remove two screws and the harness cover.



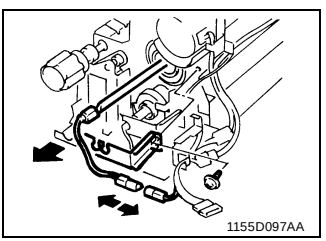
5. Remove one screw and the Fusing Roller Thermal Fuse holder.
6. Remove two screws and the heater harnesses.



7. Remove two screws and the Fusing Roller Thermal Fuse.



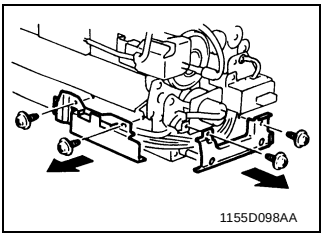
8. Remove two screws and the Fusing Unit Rear Cover.



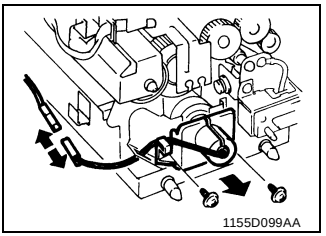
9. Unplug one connector and remove one screw and the heater lamp holder.
10. Slide out Upper Fusing Roller Heater Lamps.

NOTE

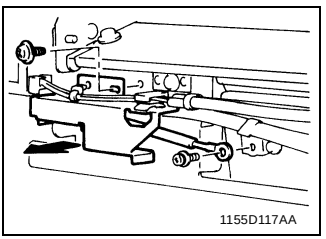
When installing the heater lamps, make sure that the end of the lamps on which their ratings are shown is on the front side.



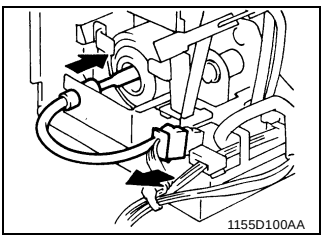
11. Remove two screws and the cover.
12. Remove two screws and the rear harness cover.



13. Remove two screws and the heater lamp holder (rear).
14. Unplug one connector.



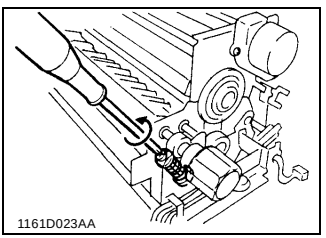
15. Remove one screw and the front harness cover.
16. Remove one screw and the heater harness.



17. Go to the rear of the Fusing Unit and slide out the Lower Fusing Roller Heater Lamp.

NOTE

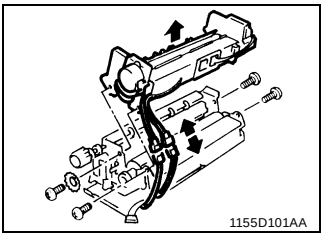
When reinstalling the Lower Fusing Roller Heater Lamp, make sure that its end on which its rating is shown is at the rear.



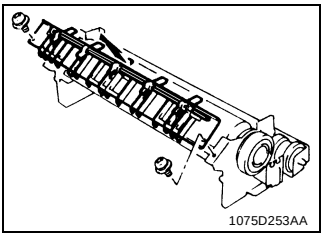
18. Loosen the roller pressure springs at the front and rear to free the Lower Fusing Roller.

NOTE

The illustration shows only the front end. Be sure also to loosen the spring at the rear.

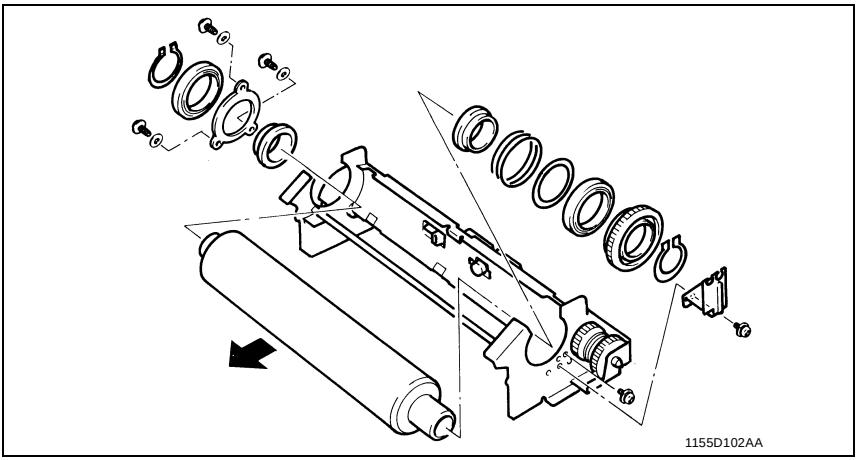


19. Unplug the connectors of the Cleaning Web Drive Motor and Upper Fusing Roller Thermistor.
20. Remove four shoulder screws, one washer, and the Upper Fusing Unit.



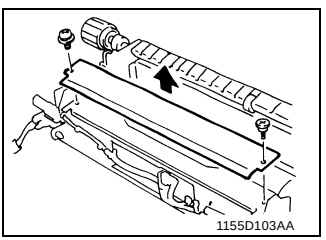
21. Remove two screws and the Lower Paper Separator Fingers Assy.

22. Disassemble the Upper Fusing Unit as illustrated.

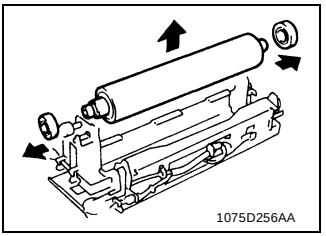


NOTE

When the Upper Fusing Roller has been removed, clear the count of Fusing Roller of PM Counter 4/4 available from Tech. Rep. mode.



23. Remove one screw, one shoulder screw, and the Pre-Fusing Guide Plate.

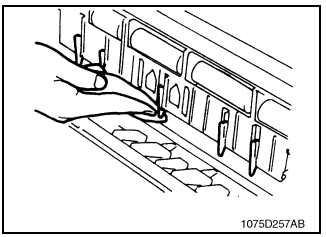


24. Remove the Lower Fusing Roller and bearings.

NOTE

When the Lower Fusing Roller has been removed, clear the count of Fusing Roller of PM Counter 4/4 available from Tech. Rep. mode.

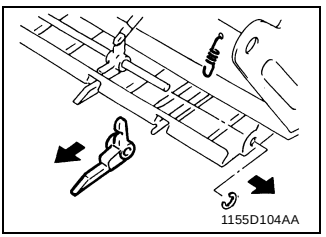
3) Cleaning and Replacement of the Upper Paper Separator Fingers



1. Open the Upper Paper Separator Fingers Assy.
2. Using a soft cloth dampened with silicone oil, wipe clean the Upper Paper Separator Fingers.

NOTE

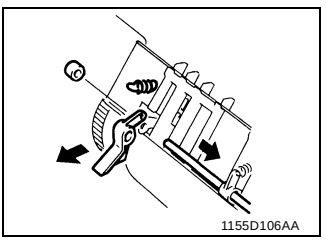
If the fingers are seriously contaminated, first use a soft cloth dampened with alcohol, then apply silicone oil to the fingers.



Replacement

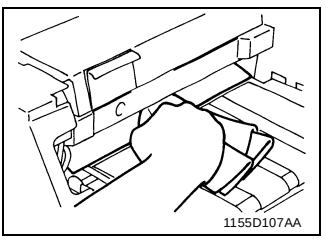
1. Remove the Upper Paper Separator Fingers Assy.
2. Unhook the finger springs, remove the E-ring, and slide out the fixing shaft to replace the Upper Paper Separator Fingers.

4) Replacement of the Lower Paper Separator Fingers



1. Remove the Fusing Unit and loosen the roller pressure springs at the front and rear.
2. Remove two screws and swing up the Upper Fusing Unit.
3. Unhook the finger springs, remove the rubber stopper, and slide out the fixing shaft to replace the Lower Paper Separator Fingers.

5) Cleaning and Replacement of the Pre-Fusing Guide Plate

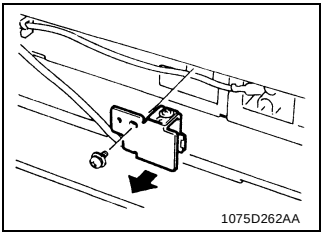


1. Open the Front Lower Door.
2. Lower Lever M4 and slide out the Transport Tray Assy.
3. Using a soft cloth dampened with alcohol, wipe clean the Pre-Fusing Guide Plate.

NOTE

For replacement of the Pre-Fusing Guide Plate, see p. D-60.

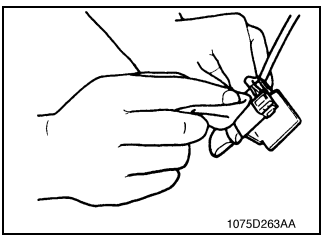
6) Cleaning and Replacement of the Upper Fusing Roller Thermistor



1. Remove the Fusing Unit and harness cover.
2. Unplug one connector and remove one screw and the Upper Fusing Roller Thermistor Assy.
3. Remove one screw and the thermistor from the Upper Fusing Roller Thermistor Assy.

NOTE

If the Upper Fusing Roller Thermistor is to be replaced with a new one, remove one screw and remove the thermistor from the Upper Fusing Roller Thermistor Assy.

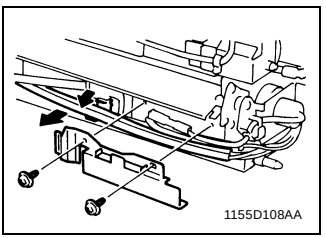


4. Using a soft cloth dampened with silicone oil, wipe clean the Upper Fusing Roller Thermistor.

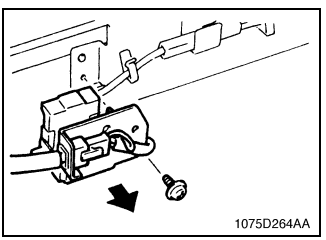
NOTE

If the thermistor is seriously contaminated, first use a soft cloth dampened with alcohol, then apply silicone oil to the thermistor.

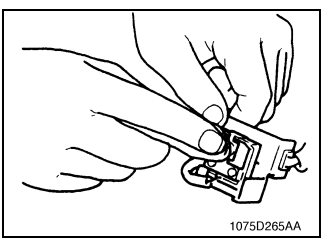
7) Cleaning and Replacement of the Lower Fusing Roller Thermistor



1. Remove the Fusing Unit.
2. Remove two screws and the harness cover.
3. Remove the harness from the wiring saddle.



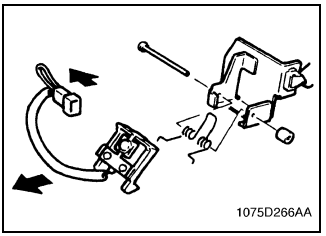
4. Remove the Fusing Unit.
5. Remove one screw to free the Lower Fusing Roller Thermistor Assy.



6. Using a soft cloth dampened with silicone oil, wipe clean the Lower Fusing Roller Thermistor.

NOTE

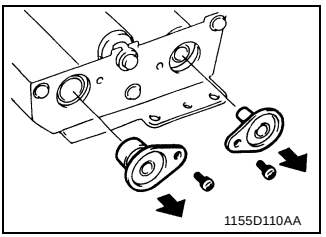
If the thermistor is seriously contaminated, first use a soft cloth dampened with alcohol, then apply silicone oil to the thermisyor.



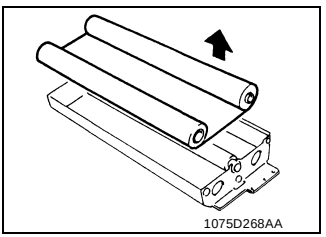
Replacement

1. Free the Lower Fusing Roller Thermistor.
2. Unplug one connector, remove the rubber stopper, and slide out the shaft to remove the Lower Fusing Roller Thermistor.

8) Replacement of the Web Roller



1. Remove the Fusing Unit. Remove the Web Roller Assy from the Fusing Unit.
2. Remove one screw each from the Web Roller bushing and Web Take-Up Roller bushing.

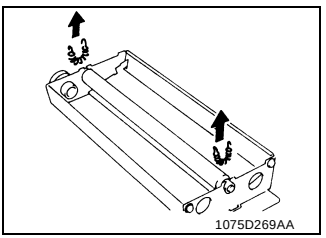


3. Remove the Web Roller and Web Take-Up Roller.

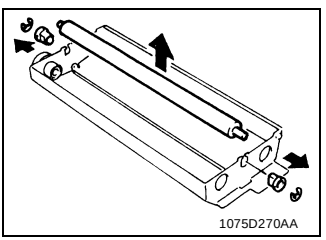
NOTE

When the Web Roller has been removed, clear Web-Count of Consumables Counter available from Tech. Rep. mode.

9) Replacement of the Web Pressure Roller

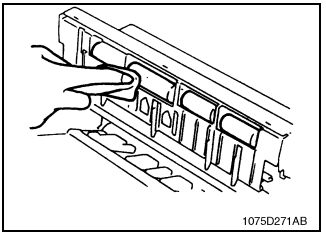


1. Remove the Web Roller and Web Take-Up Roller.
2. Remove the pressure springs at the front and rear.



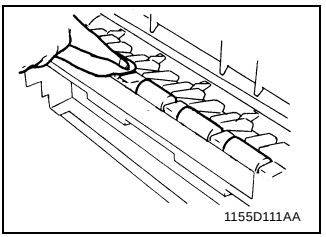
3. Remove the E-rings and bushings from the front and rear ends and remove the Web Pressure Roller.

10) Cleaning of the Upper Transport Roller



1. Open the Front Lower Door.
2. Lower Lever M4 and slide out the Transport Tray Assy.
3. Using a soft cloth dampened with alcohol, wipe clean the Upper Transport Roller.

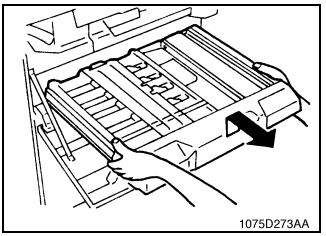
11) Cleaning of the Lower Transport Roller



1. Open the Front Lower Door.
2. Lower Lever M4 and slide out the Transport Tray Assy.
3. Using a soft cloth dampened with alcohol, wipe clean the Lower Transport Roller.

2-9. DUPLEX UNIT

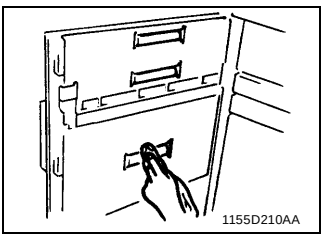
• Removal of the Duplex Unit



1. Open the Front Lower Door. Slide out the Duplex Unit and, slightly lifting it up, remove it from the copier.

2-10. TURNOVER UNIT

• Cleaning of the Turnover Roller/Transport Rollers (Upper/Lower)

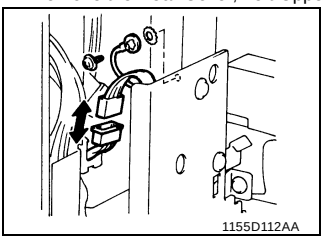


1. Open the Left Upper Door.
2. Using a soft cloth dampened with alcohol, clean the Turnover Roller/Transport Rollers (Upper/Lower).

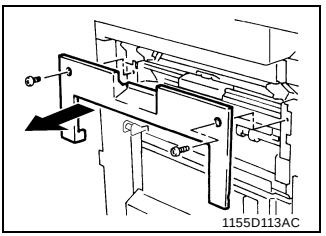
2-11. EXIT UNIT

• Removal of the Exit/Duplex Switching Unit

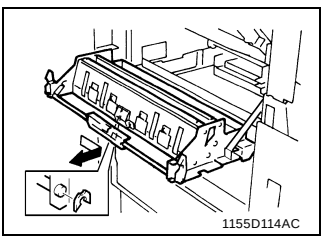
1. Remove the Rear Cover, Left Upper Cover and Left Rear Cover.



2. Unplug one connector.
3. Remove one screw and the ground wire.
4. Remove the harness from the cord clamps.



5. Remove two screws and the cover of the Exit/Duplex Switching Unit.



6. Open the Exit/Duplex Switching Unit.
7. Remove the harness from the edge cover.
8. Remove one screw and holding bracket. Then, remove the band from the Exit/Duplex Switching Unit.
9. Close the Exit/Duplex Switching Unit and remove one E-ring from the unit mounting shaft.
10. Open and remove the Exit/Duplex Switching Unit.

3. ADJUSTMENT

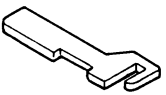
3-1. ADJUSTMENT JIGS AND TOOLS USED

NOTE

The number above the illustration of each jig is the Jig part number.

① Front Lower Door Interlock Switch Actuating Jig

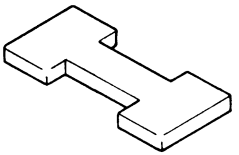
1075-7906-02



1075D114AA

② Predrive Inhibit Switch Actuating Jig

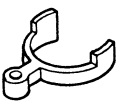
1067-7901-01



1075D115AA

③ Scanner Drive Cable Holding Jig

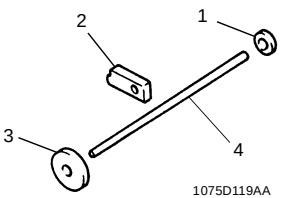
1155-7901-01



1075D116AA

④ PC Drum Paper Separator Fingers Jig

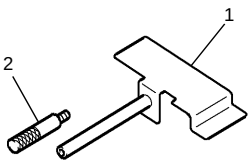
1. 1075-7902-01: PC Drum Bearing Jig (front)
2. 1075-7903-01: PC Drum Paper Separator Fingers Jig
3. 1074-7903-02: PC Drum Bearing Jig (rear)
4. 1031-7922-01: Shaft



1075D119AA

⑤ Scanner/Mirrors Carriage Positioning Jig

1. 1155-7902-01: Scanner/Mirrors Carriage Positioning Jig
2. 1022-7807-01: Set Screws



1155D170AA

3-2. ADJUSTMENT REQUIREMENTS LIST

Adjustment Item	Requirements	Adjustment Point	Ref. page
Touch Panel Adj.	Automatically adjusted	Control Panel	D-82
Orig. Size Adjust	↑	↑	D-83
Address Adjust	↑	↑	D-84
ATDC Sensor Adjust	↑	↑	D-85
AIDC Sensor Adjust	↑	↑	D-86
Universal Tray width detection adjustment	↑	↑	D-87
Zoom (FD) Adjust	410 ± 0.5 mm	Control Panel	D-90
Registration (CD)	5.0 ± 0.5 mm	↑	D-91
Registration (FD)	↑	↑	D-92
Lead Edge Erase	3.0 ± 1.0 mm	↑	D-94
Trail Edge Erase	↑	↑	D-96
Loop Adjustment	Approx. 3.0 mm	↑	D-98
γ Table	Within reference gradation range	↑	D-100
Erasure Width	3.0 mm	↑	D-102
Zoom (CD)	200 ± 1.0 mm	↑	D-104
Zoom (FD)	300 ± 1.5 mm	↑	D-106
Scale (CD)	0 ± 0.5 mm	↑	D-108
Scale (FD)	↑	↑	D-110

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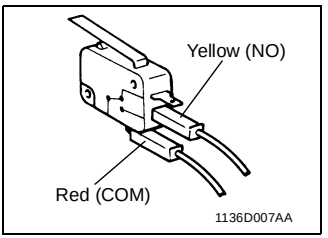
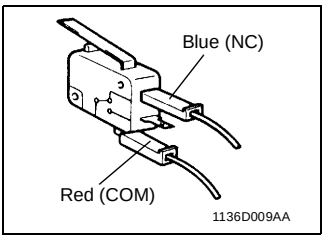
3-3. ADJUSTMENT OF SWITCHES

1) Microswitches

The following microswitches are used in various parts of this copier.



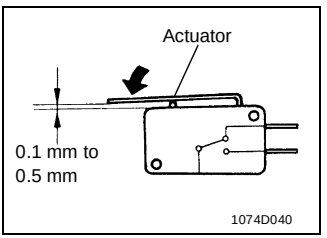
Wiring for the NO Type



Wiring for the NC Type

NC (Normally-Closed) : Current flows between NC and COM when the actuator is open.
NO (Normally-Open) : Current flows between NO and COM when the actuator is closed.
COM (Common) : Common contact for NC and NO.

Requirement

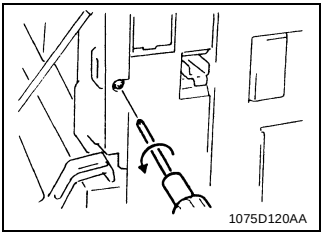


The gap between the switch and actuator should be 0.1 to 0.5 mm when the actuator is closed.

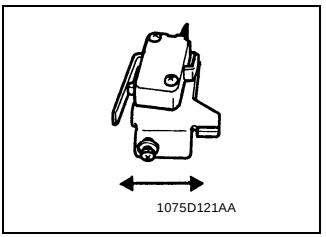
Out-of-Adjustment (When the actuator is closed)

- If the gap between the switch and actuator is too big, current does not at times flow to NC or NO.
- If there is no gap between the switch and actuator, the actuator is bent or the switch can be broken.

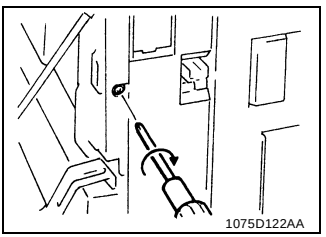
2) Adjustment of the Front Lower Door Interlock Switch Position



1. Open the Front Lower Door.
2. Accessing through the notch in the Right Front Cover, loosen the screw that secures the Interlock Switch Assy.



3. If the Interlock Switch is OFF when the Front Lower Door is closed, move the Interlock Switch Assy towards the front. When the Front Lower Door cannot be closed because the Interlock Switch is moved too much towards the front, shift it back.



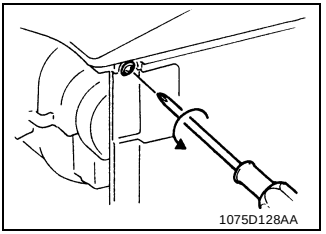
4. After the Interlock Switch Assy is moved, tighten the mounting screw.
5. Check the Interlock Switch ON/OFF by closing and opening the Front Lower Door.

Reference

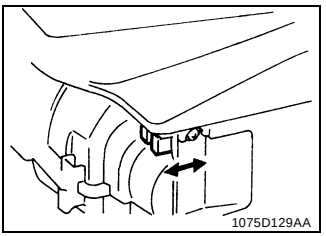
An NO type switch is used for the Interlock Switch.

3-4. SENSOR ADJUSTMENT

1) Adjustment of Front Upper Door Set Sensor Position



1. Open the Front Upper Door.
2. Accessing through the notch in the Right Front Cover, loosen the screw by which the Set Sensor Assy is mounted.



3. Since the Set Sensor and the magnet catch are located on the same mounting bracket, move them so that the Front Upper Door is securely locked when it is closed.
4. After the Set Sensor and the magnet catch are moved, tighten the mounting screw.
5. Check the Set Sensor is activated and deactivated and the door locks by closing and opening the Front Upper Door.

3-5. ADJUSTMENT OF BELT TENSION

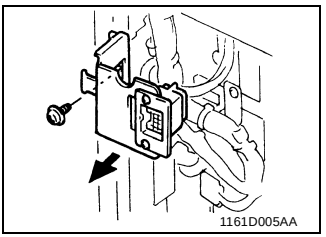
Checks after Adjustment

1) Turn the Timing Belt and check that all the Pulleys and grooves of the Belt fit securely.
2) Each Belt should flex a little when the Belt is lightly pressed with a finger.

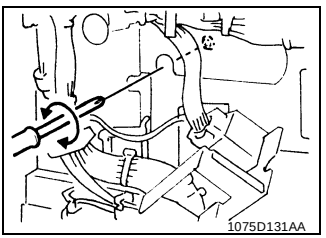
Reference

Since a given tension is applied by a tension spring to the Tension Lever that maintains the tension of each timing belt, adjustment is completed by re-tightening the mounting screw after it has been loosened.

1) Adjustment of the Vertical Transport Section Timing Belt

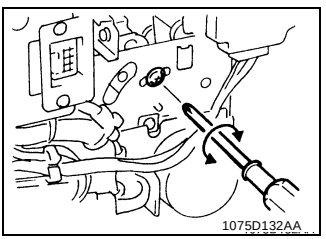


1. Remove the Rear Cover.
2. Remove one screw and the Large Capacity Cassette Lattice Connector mounting bracket.



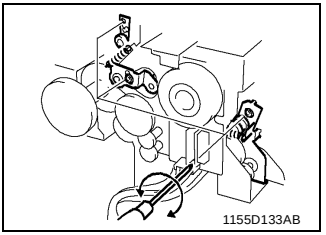
3. Through the notch, loosen the screw by which the Tension Lever is mounted as shown on the left and then re-tighten it.

2) Adjustment of the Paper Take-Up Unit Timing Belt



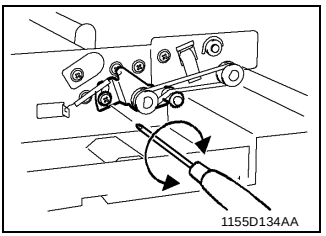
1. Remove the Rear Cover.
2. Loosen the screw by which the Tension Lever is mounted as shown on the left and then re-tighten it.

3) Adjustment of the PC/Suction Drive Timing Belt



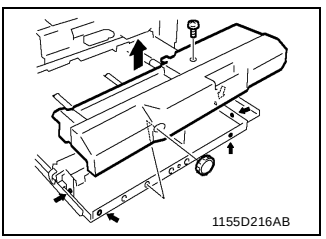
1. Remove the Rear Cover.
2. Remove the Master Board mounting plate Assy. and flywheel.
3. Loosen the screw with which each tension lever is secured as shown on the left and then re-tighten it.

4) Adjustment of the Duplex Unit Timing Belt

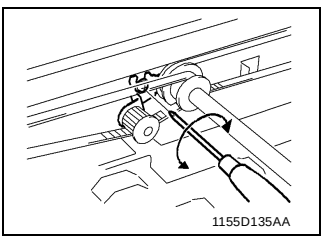


1. Open the Front Lower Door and pull out the Duplex Unit.
2. Remove the Duplex Unit Cover.
3. Loosen the screw by which the Tension Lever is mounted as shown on the left and then re-tighten it.

5) Adjustment of the Duplex Unit Front/Rear Edge Guide Timing Belt

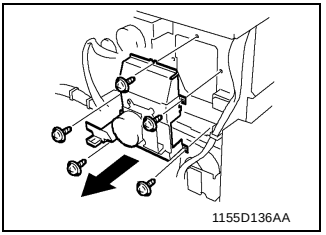


1. Open the Front Lower Door and pull out the Duplex Unit.
2. Remove the Misfeed Clearing Knob and one screw, then loosen five screws to remove the Duplex Unit Cover.

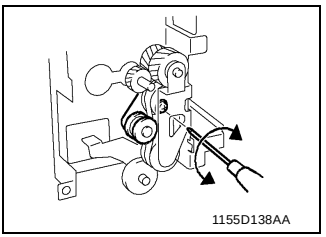


3. Loosen the screw by which the Tension Lever is mounted as shown on the left and then re-tighten it.

6) Adjustment of the Paper Exit Timing Belt

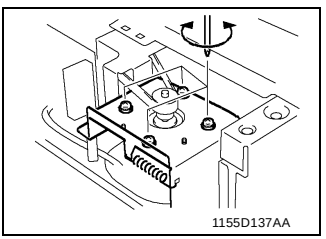


1. Remove the Rear Cover.
2. Remove five screws and the Fusing Unit Drive Assy.



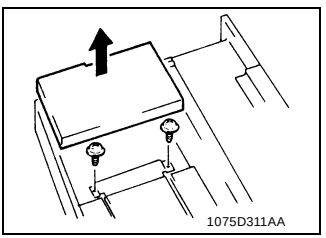
3. Loosen the screw by which the Tension Lever is mounted as shown on the left and then re-tighten it.

7) Adjustment of the Scanner Motor Timing Belt



1. Remove the Rear Cover and Upper Rear Cover.
2. Loosen four screws on the Scanner Motor mounting bracket and then re-tighten them.

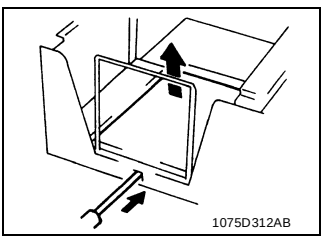
8) Adjustment of the 3rd Drawer Timing Belt



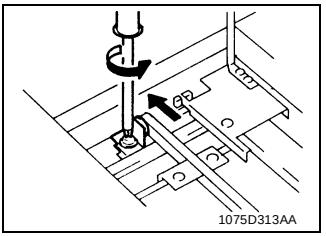
1. Pull out the 3rd Drawer and remove it.
2. Lift up the Main Tray and remove the two screws by which the Shift Tray is fixed.

NOTE

Be careful, the Main Tray wire easily comes off at reassembly.

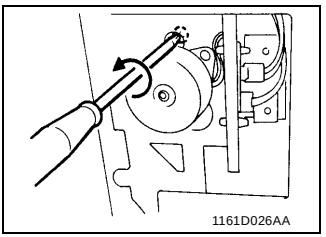


3. Release the lock by pressing the lock lever of the Shift Tray using a screwdriver, etc., as shown on the left.
4. Remove the Shift Tray.



5. Loosen the screw by which the Tension Pulley Assy is mounted and move the assy in the direction of the arrow.
6. After moving it, tighten the mounting screw.

9) Adjustment of the Turnover Unit Timing Belt



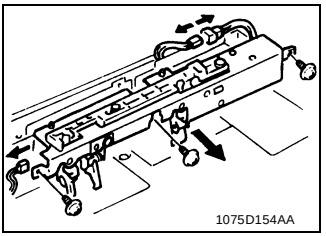
1. Remove the Front Left Cover and Left Front Cover.
2. Loosen the screw that secures the Tension Pulley Assy and then tighten it again.

3-6. SOLENOID POSITION ADJUSTMENT
1) Adjustment of Manual Feed Paper Pick-Up Solenoid Position

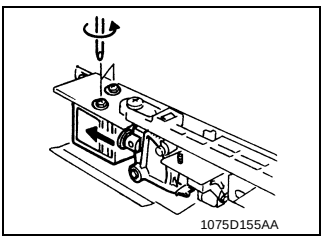
Requirement

The Paper Stoppers should be fixed perpendicularly when the Pick-Up Solenoid is ON.

Adjustment Procedure



1. Remove the Right Door.
2. Remove three screws and the Multi-Bypass Unit.
3. Remove two screws and the Manual Feed Paper Pick-Up Solenoid Assy cover.
4. Loosen two screws, slide the pivot shaft, and remove the Multi Bypass Table.
5. Remove three screws, unplug two connectors, and remove the Manual Feed Paper Pick-Up Solenoid Assy.

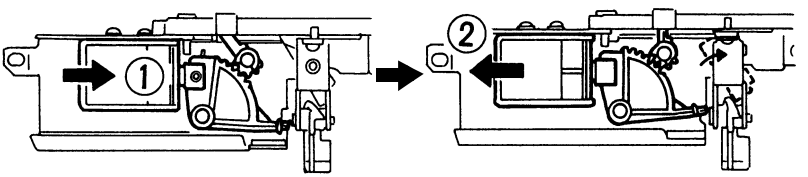


6. Set the Pick-Up Solenoid to ON.

Reference

Since a keeper solenoid is used as the Pick-Up Solenoid, the set condition is kept when the Pick-Up Solenoid is ON.

7. Loosen the two screws by which the Pick-Up Solenoid is mounted.
8. Move the Pick-Up Solenoid in the direction of arrow ①, then slowly move it in the direction of arrow ②.
9. Move the Pick-Up Solenoid up to the position where the Lock Lever of the Paper Stopper becomes perpendicular (the position where the Paper Stopper is locked).
   Be careful since if the Pick-Up Solenoid is moved too much, the set condition is released. If the set condition is released, set the Pick-Up Solenoid to ON again and repeat from step 7.
10. After the adjustment has been made, tighten the two the Pick-Up Solenoid mounting screws.



Check after Adjustment

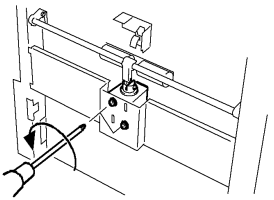
Check that the Paper Stopper is securely locked perpendicularly when the Pick-Up Solenoid is ON. (If adjustment is insufficient, the Paper Stopper may not be locked or the set condition may not be kept even when the Pick-Up Solenoid is ON.)

2) Adjustment of the Duplex Unit Paper Take-Up Solenoid Position

Requirement

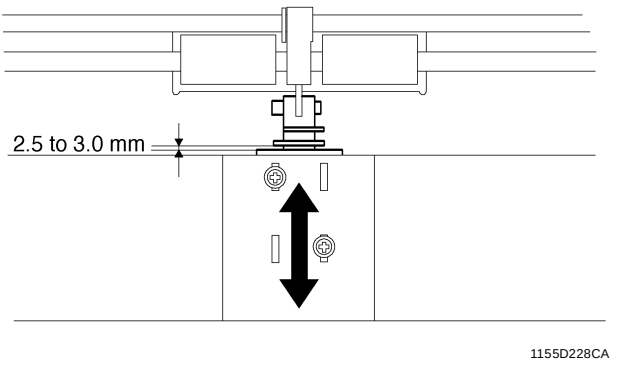
The gap between the E-ring of the plunger and the Take-Up Solenoid should be 2.5 to 3.0 mm when the Take-Up Solenoid is OFF.

Adjustment Procedure



1. Remove the Left Lower Door.
2. Remove eight screws and the Turnover Unit Assy.
3. Loosen the two screws by which the Take-Up Solenoid is mounted.

4. Move the Take-Up Solenoid so that the gap between the E-ring of the plunger and the Take-Up Solenoid is 2.5 to 3.0 mm when the Take-Up Solenoid is OFF.



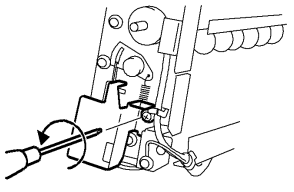
5. After adjustment is completed, tighten the two Take-Up Solenoid mounting screws.

3) Adjustment of the Exit/Duplex Switching Solenoid Position

Requirement

The stopper of the Exit/Duplex Switching Plate should be in contact with the guide plate when the Switching Solenoid is energized.

Adjustment Procedure



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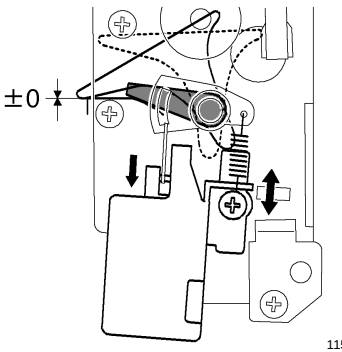
1. Remove the Left Upper Door.
2. Loosen the screw by which the Switching Solenoid Assy is mounted.

3. Adjust the position of the Switching Solenoid Assy so that the stopper of the Exit/Duplex Switching Plate comes in contact with the guide plate when the Switching Solenoid is energized.



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4. After the adjustment is completed, tighten the Switching Solenoid Assy mounting screw.

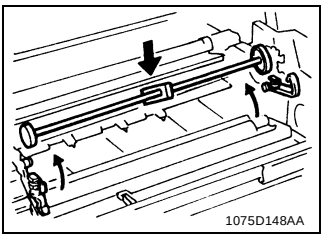
4) Positioning of the PC Drum Paper Separator Fingers [Separator Finger Solenoid]

Requirement

The gap between the three PC Drum Paper Separator Fingers and the PC Drum should be 0.3 to 1.0 mm when the Separator Finger Solenoid is OFF.

Adjustment Procedure

1. Open the Front Lower Door and loosen one screw to pull out the PC Unit.
2. Remove the Developing Unit and take out the PC Drum.

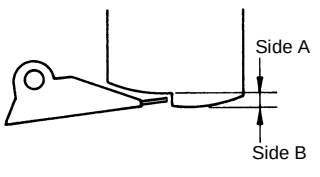


3. Set the PC Drum Separator Fingers Jig against the Cleaning Unit and fix it with the Front and Rear PC Drum Lock Levers.
4. Move the PC Drum Separator Fingers Jig over the PC Drum Separator Fingers.
5. Adjust so that the tips of each separator finger matches the center between side A and side B of the PC Drum Separator Fingers Jig when the Separator Finger Solenoid is OFF.
   When the mounting angles of the three separator fingers are slightly uneven, it is acceptable if the three separator fingers are positioned between side A and side B. To adjust, turn the adjustment screw with a 3 mm Allen wrench.

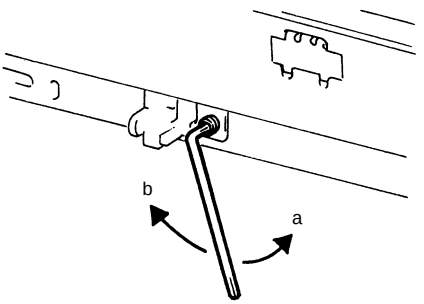
NOTE

The PC Drum Paper Separator Fingers make a lateral motion when the Separator Finger Solenoid is deenergized. Check must therefore be made when the fingers are located at the front end and the rear end in their lateral movement.

- Turning in direction “a” lowers the tip of the separator finger.
- Turning in direction “b” lifts the tip of the separator finger.



1075D149AB



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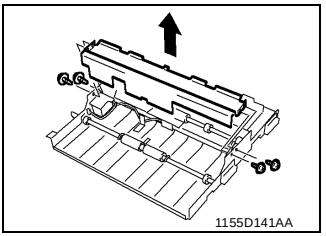
5) Adjustment of the Duplex Unit Turnover Exit Solenoid Position

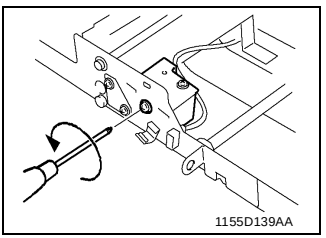
Requirement

The gap between the guide fingers and guide plate should be 4 + $\frac{1}{0}$ mm when the Turnover Exit Solenoid is ON.

Adjustment Procedure

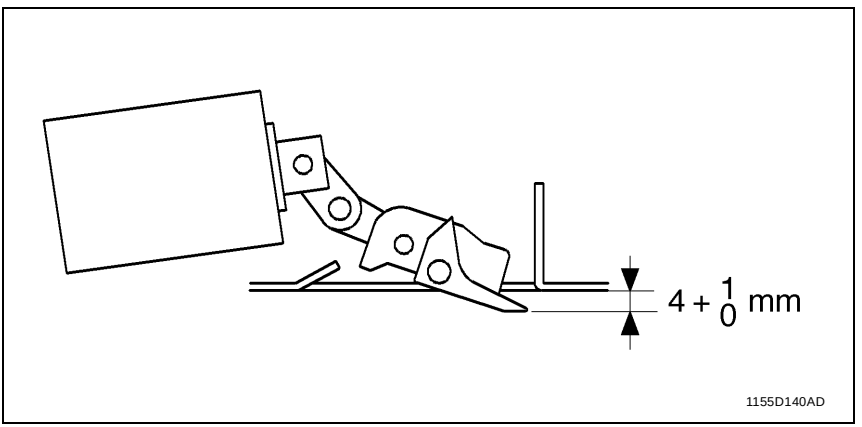


1. Remove the Left Lower Door.
2. Remove four screws and the mounting bracket.



3. Loosen one screw by which the Turnover Exit Solenoid Assy is mounted.

4. Move the Turnover Exit Solenoid Assy so that the gap between the guide fingers and guide plate is 4 + $\frac{1}{0}$ mm when the Turnover Exit Solenoid is ON.



5. After the adjustment is completed, tighten the two mounting screws.

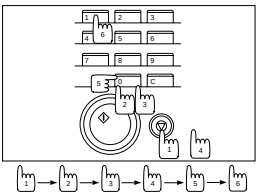
3-7. ACCESSING THE TECH. REP. MODE, SECURITY MODE AND ADJUST MODE

1) Accessing the Tech. Rep. Mode

To access the Tech. Rep. Mode, press the following keys in that order.
With the copier turned ON, press the Tech. Rep. Setting Switch. Or, with the Meter Count screen opened from Utility, press the following keys in this order:

Stop Key ➡ "0" of 10-Key Pad ➡ "0" of 10-Key Pad ➡ Stop Key ➡ "0" of 10-Key Pad ➡

➡ "1" of 10-Key Pad



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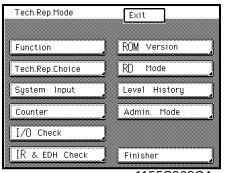

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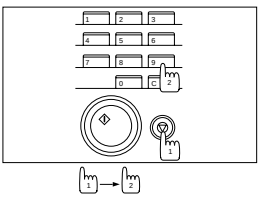
Press the keys in order of [1], [2], [3], [4], [5] and [6].

2) Accessing the Security Mode

To access the Security mode, press the following keys in this order with the Tech. Rep. mode menu on the screen:

Stop Key ➡ "9" of 10-Key Pad



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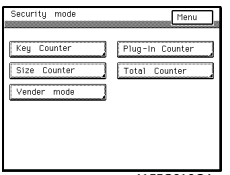

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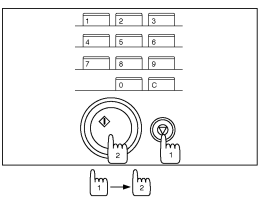
Press the keys in order of [1] and [2].

3) Accessing the Adjust Mode

To access the Adjust mode, press the following keys in that order with the Tech. Rep. mode menu on the screen:

Stop Key ➡ Start Key



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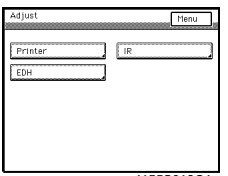

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Press the keys in order of [1] and [2].

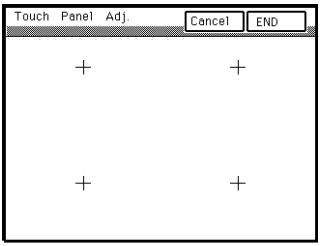
3-8. ELECTRICAL/IMAGE ADJUSTMENT
1) Touch Panel Adj.

When is this adjustment required?

Be sure to perform the Touch Panel Adj. after the following items have been done.
1) Memory Clear
2) Control Panel replacement

Adjustment Procedure

1. Call the Tech. Rep. mode to the screen.
2. Touch [Tech. Rep. Choice] and [System Set], in that order.
3. Touch [Touch Panel Adj.].



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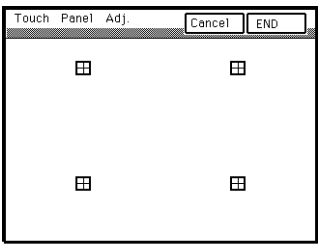
4. Touch the four crosses (+) on the screen in sequence.

NOTE

These crosses may be touched in any order; but be sure to touch the center of each cross.



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5. The cross touched changes into a grid marker (consisting of a square with a cross superimposed) and the adjustment is completed when [END] is touched.

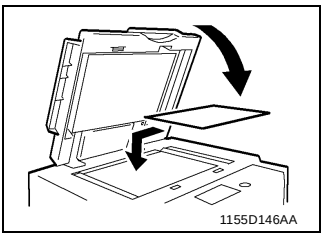
6. Touch [End]. Then, touch [Menu] to recall the Tech. Rep. mode to the screen.

2) Orig. Size Adjust

When is this adjustment required?

Be sure to perform the Orig. Size Adjust after the following items have been done.
1) Memory Clear
2) A faulty original size detection occurs.
3) Replacement of the CCD Unit and Scanner parts (including the Exposure Lamp)

Adjustment Procedure



1. Place a chart (a blank sheet of A4 lengthwise or Letter paper) on the Original Glass and lower the Electronic Document Hander.
2. Call the Tech. Rep. mode to the screen.
3. Touch [I.R. & EDH Check] and [Function (I.R.)], in that order.
4. Touch [Orig. Size Adjust].
5. Press the Start key to execute Orig. Size Adjust.

NOTE

The Start key remains lit up orange while this function is being run and lights up green as soon as the sequence is completed.

6. If the adjustment was made okay, touch [Save] to save the adjustment value.
7. After the adjustment, touch [End] and then [Menu] to recall the Tech. Rep. mode to the screen.

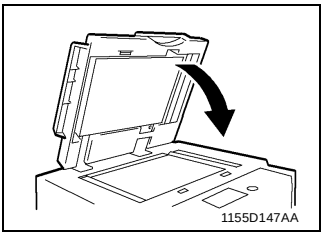
3) Address Adjust

When is this adjustment required?

Be sure to perform the Address Adjust after the following items have been done.

- *Replacement of the CCD Unit and Scanner parts (including the Exposure Lamp)*

Adjustment Procedure



1. Lower the Electronic Document Hander with no original placed on the Original Glass.
2. Call the Tech. Rep. mode to the screen.
3. Touch [I.R. & EDH Check] and [Function (I.R.)], in that order.
4. Touch [Address Adjust].
5. Press the Start key to execute Address Adjust.

NOTE

The Start key remains lit up orange while this function is being run and lights up green as soon as the sequence is completed.

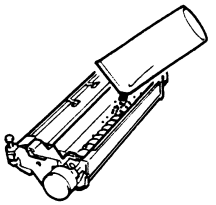
6. If the adjustment was made okay, touch [Save] to save the adjustment value.
7. After the adjustment, touch [End] and then [Menu] to recall the Tech. Rep. mode to the screen.

4) ATDC Sensor Adjustment (F8 Mode)

When is this adjustment required?

- *Be sure to perform the ATDC Adjustment (F8 mode) after the following items have been done.*
  1) Starter replacement
  2) ATDC Sensor replacement

Adjustment Procedure



1. Load the Developing Unit with two packs of fresh starter.
2. Set the Developing Unit into the PC Unit.
3. Reinstall the PC Unit into the copier and tighten the three screws.
4. Turn the Power Switch ON.
5. Call the Tech. Rep. mode menu to the screen.
6. Touch [Function] and [Printer], in that order.
7. Touch [F8 ATDC Sensor Adjustment].
8. Press the Start Key to let the copier make the ATDC Sensor adjustment. (It will run for about 3 minutes.)

NOTES

1) While the copier is in the adjustment cycle, the Start Key is lit up orange. The key turns green as soon as the adjustment cycle is completed.
2) Note that the press of the Start key lets the ATDC Sensor Adjustment run automatically. Run this function only after the starter has been changed, ATDC Sensor replaced.

TIPS

1) Before running an F8 operation, retract the Cleaning Blade with the Cleaning Blade Retracting Lever to prevent the PC Drum from being scratched.
2) After F8 has been run, bring the Cleaning Blade into contact with the surface of the PC Drum using the Cleaning Blade Retracting Lever.

9. After the adjustment, touch [End] and then [Menu] to recall the Tech. Rep. mode to the screen.
10. Call the Adjust screen to the Touch Panel. Select ATDC Control and write down the value for " Current" in the ATDC column on the Adjust Label.

5) AIDC Sensor Adjustment (F5 Mode)

When is this adjustment required?

- *Be sure to perform the AIDC Adjustment (F5 mode) after the following items have been done.*
  1) Starter replacement
  2) AIDC Sensor replacement
  3) Memory clear

NOTE

This adjustment must be made after F8 ATDC Sensor Adjustment.

Adjustment Procedure

1. Turn the Power Switch ON.
2. Call the Tech. Rep. mode menu to the screen.
3. Touch [Function] and [Printer], in that order.
4. Touch [F5 AIDC Sensor Adjustment].
5. Press the Start Key to let the copier make the AIDC Sensor adjustment. (It will run for about 3 minutes.)

NOTE

While the copier is in the adjustment cycle, the Start Key is lit up orange. The key turns green as soon as the adjustment cycle is completed.

6. After the adjustment, touch [End] and then [Menu] to recall the Tech. Rep. mode to the screen.

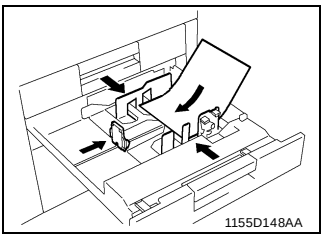
6) Universal Tray Width Detection Adjustment (FD Mode)

When is this adjustment required?

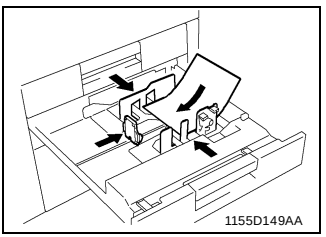
- *Be sure to perform the Universal Tray Width Detection Adjustment (FD Mode) after the following items have been done.*
  1) Memory Clear
  2) RAM Board replacement
  3) Disassembly of the Universal Tray

Adjustment Procedure

1. Call the Tech. Rep. mode menu to the screen.
2. Touch [Function] and [Printer], in that order.
3. Touch [FD Universal Tray width detection Adjustment].



4. Select [Max.].
5. Place A4 or Letter paper in the crosswise direction in the Universal Tray and slide the Edge Guide to the width of the paper.
6. Press the Start key to execute the function.



7. Select [Min.].
8. Place B5 paper in the crosswise direction in the Universal Tray and slide the Edge Guide to the width of the paper.
9. Press the Start key to execute the function.

10. After the adjustment, touch [End] and then [Menu] to recall the Tech. Rep. mode to the screen.

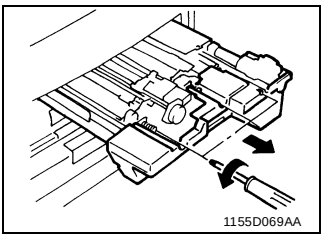
7) PC Unit Connection Adjustment

When is this adjustment required?

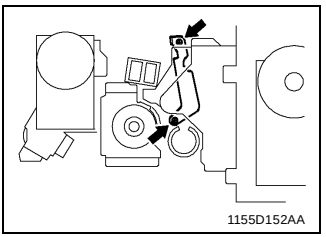
Be sure to perform the PC Unit Connection Adjustment after the following items have been done.

- *PC Unit replacement*

Adjustment Procedure



1. Slide out the PC Unit.



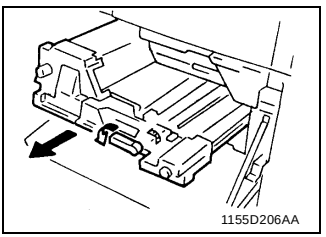
2. Remove the Rear Cover.
3. Loosen the two screws on the PC Unit positioning pin.
4. Install the PC Unit in place and tighten the two screws.

8) Transport Unit Connection Adjustment

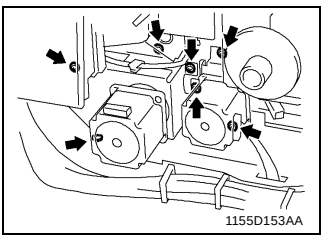
When is this adjustment required?

Be sure to perform the Transport Unit Connection Adjustment after the following items have been done.
1) Transport Unit replacement
2) Removal of the Transport Motor and Synchronizing Motor

Adjustment Procedure



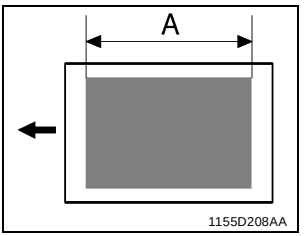
1. Slide out the Transport Unit.



2. Remove the Rear Cover.
3. Loosen the seven screws that secure the Transport Motor and Synchronizing Motor.
4. Install the Transport Unit in place and tighten the seven screws.

9) Zoom (FD) Adjust

Requirement



Width A on the test pattern output should fall within the following range.

Specification	Adjust Mode	Setting Range
410 ± 0.5 mm	Zoom (FD) Adjust	-3 to +3

NOTE

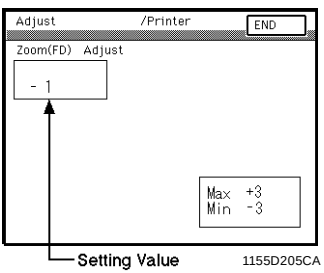
This adjustment must be made when the PH or the Scanner Drive Cable has been replaced.

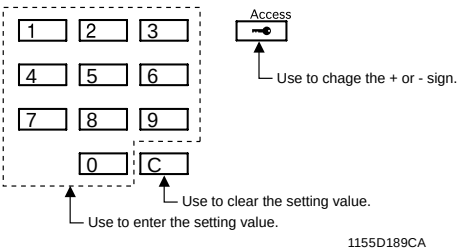
Adjustment Procedure

1. Call the Adjust mode to the screen.
2. Touch [Printer] and [Zoom (FD) Adjust], in that order.
3. Select the Universal Tray for the paper source and load A3 in the tray.
4. Press the Start key to let the copier produce a test pattern.
5. Check to see if width A on the test pattern is up to the specifications. If it is outside the specified range, perform the following adjustment steps.
6. Use the 10-key Pad to change the setting value.

Setting Instructions

If width A is longer than the specifications, make the setting value smaller than the current one.
If width A is shorter than the specifications, make the setting value greater than the current one.
1) Use the following equation to find the setting value:
[Specification (410 mm) - measurement] / 0.5 = setting value
2) If a single adjustment procedure does not successfully bring width A into the specified range, try another setting value.





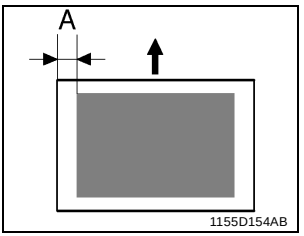
7. Touch the [Enter] key to validate the setting value.

Caution

Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

10) Registration (CD)

Requirement



Width A on the test pattern output should fall within the following range.

Specification	Adjust Mode	Setting Range
5.0 ± 0.5 mm	Registration (CD)	-8.2 to +8.2

NOTE

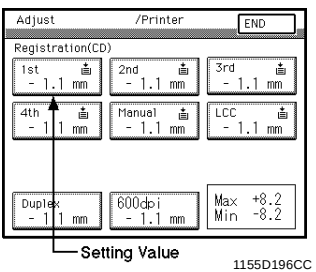
This adjustment must be made after the PH has been replaced and following the adjustment of the reference Zoom (FD) Adjust.

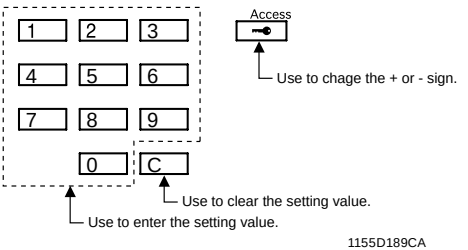
Adjustment Procedure

1. Call the Adjust mode to the screen.
2. Touch [Printer] and [Registration (CD)], in that order.
3. Select the paper source to be checked and adjusted.
4. Press the Start key to let the copier produce a test pattern.
5. Check to see if width A on the test pattern is up to the specifications. If it is outside the specified range, perform the following adjustment steps.
6. Use the 10-key Pad to change the setting value.

Setting Instructions

If width A is longer than the specifications, make the setting value smaller than the current one.
If width A is shorter than the specifications, make the setting value greater than the current one.
1) Use the following equation to find the setting value:
Specification (5.0 mm) - measurement = setting value
2) If a single adjustment procedure does not successfully bring width A into the specified range, try another setting value.





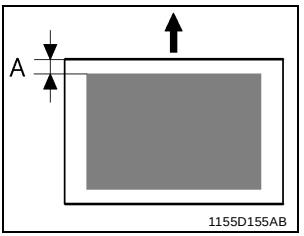
7. Touch the [Enter] key to validate the setting value.

Caution

Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

11) Registration (FD)

Requirement



Width A on the test pattern output should fall within the following range.

Specification	Adjust Mode	Setting Range
5.0 ± 0.5 mm	Registration (FD)	-8.2 to +8.2

NOTE

This adjustment must be made after the PH has been replaced and following the Zoom (FD) Adjust.

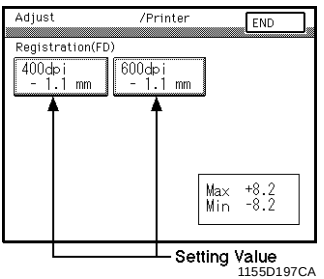
Adjustment Procedure

1. Call the Adjust mode to the screen.
2. Touch [Printer] and [Registration (FD)], in that order.
3. Touch [400 dpi].
4. Press the Start key to let the copier produce a test pattern on five sheets of A4 crosswise or Letter paper.
5. Pick out one test pattern output on which the distance between the leading edge of the paper and the image start position is just about average visually. Check to see if width A on the test pattern is up to the specifications. If it is outside the specified range, perform the following adjustment steps.

6. Use the 10-key Pad to change the setting value.

Setting Instructions

If width A is longer than the specifications, make the setting value smaller than the current one.
If width A is shorter than the specifications, make the setting value greater than the current one.
1) Use the following equation to find the setting value:
Specification (5.0 mm) - measurement = setting value
2) If a single adjustment procedure does not successfully bring width A into the specified range, try another setting value.



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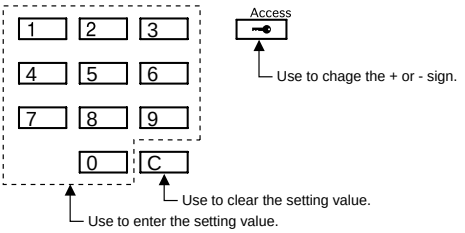


1155D189CA

7. Touch the [Enter] key to validate the setting value.

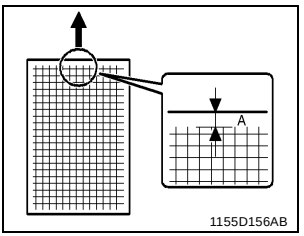
Caution

Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

8. Using the same procedure, adjust for 600 dpi.

12) Lead Edge Erase

Requirement



Width A on the test pattern output should fall within the following range.
Note: The measurement shall be taken at the center on the leading edge of the paper.

Specification	Adjust Mode	Setting Range
3.0 ± 3.0 mm	Lead Edge Erase	0 to 5

NOTE

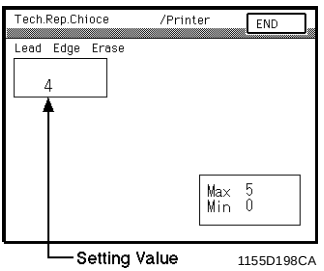
This adjustment must be made after the PH has been replaced and following Registration (CD, FD) and Zoom (FD) Adjust.

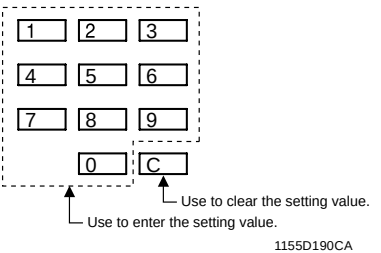
Adjustment Procedure

1. Call the Tech. Rep. mode to the screen.
2. Touch [Tech. Rep. Choice] and [Printer], in that order.
3. Touch [Lead Edge Erase].
4. Press the Start key to let the copier produce a test pattern. Then, press the Stop key.
5. Check to see if width A on the test pattern is up to the specifications. If it is outside the specified range, perform the following adjustment steps.
6. Use the 10-key Pad to change the setting value.

Setting Instructions

If width A is longer than the specifications, make the setting value smaller than the current one.
If width A is shorter than the specifications, make the setting value greater than the current one.
- *If a single adjustment procedure does not successfully bring width A into the specified range, try another setting value.*





7. Touch the [Enter] key to validate the setting value.

Caution

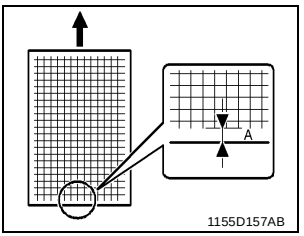
Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

8. Call the Tech. Rep. mode to the screen.
9. Touch [Function] and [Printer Function], in that order.
10. Touch [F12] test pattern output.
11. Select 600 dpi for DPI, F12-3 for the test pattern, and 1st Drawer for the paper source.

12. Press the Start key to let the copier produce a test pattern. Then, press the Stop key.
13. Check to see if width A on the test pattern is up to the specifications. If it is outside the specified range, replace the PH Unit.

13) Trail Edge Erase

Requirement



Width A on the test pattern output should fall within the following range.
Note: The measurement shall be taken at the center on the trailing edge of the paper.

Specification	Adjust Mode	Setting Range
3.0 ± 3.0 mm	Trail Edge Erase	0 to 5

NOTE

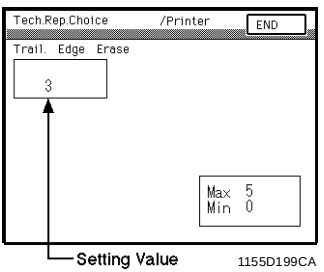
This adjustment must be made after the PH has been replaced and following Registration (CD, FD) and Zoom (FD) Adjust.

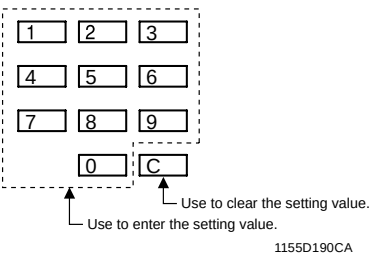
Adjustment Procedure

1. Call the Tech. Rep. mode to the screen.
2. Touch [Tech. Rep. Choice] and [Printer], in that order.
3. Touch [Trail Edge Erase].
4. Press the Start key to let the copier produce a test pattern. Then, press the Stop key.
5. Check to see if width A on the test pattern is up to the specifications. If it is outside the specified range, perform the following adjustment steps.
6. Use the 10-key Pad to change the setting value.

Setting Instructions

If width A is longer than the specifications, make the setting value smaller than the current one.
If width A is shorter than the specifications, make the setting value greater than the current one.
- *If a single adjustment procedure does not successfully bring width A into the specified range, try another setting value.*





7. Touch the [Enter] key to validate the setting value.

Caution

Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

8. Call the Tech. Rep. mode to the screen.
9. Touch [Function] and [Printer Function], in that order.
10. Touch [F12] test pattern output.
11. Select 600 dpi for DPI, F12-3 for the test pattern, and 1st Drawer for the paper source.

12. Press the Start key to let the copier produce a test pattern. Then, press the Stop key.
13. Check to see if width A on the test pattern is up to the specifications. If it is outside the specified range, replace the PH Unit.

14) Loop Adjustment

Requirement

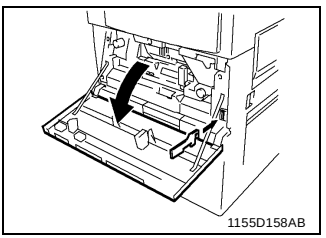
Adjust so that a correct loop is formed at part A when paper is fed through.

Specification	Adjust Mode	Setting Range
Approx. 3.0 mm (visual)	Loop Adjustment	-3 to +3

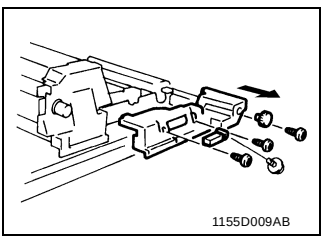
NOTE

This adjustment is to be made when any of the following symptoms occurs: variations in the amount of print leading edge void, paper skew, folded edge, and misfeed.

Adjustment Procedure

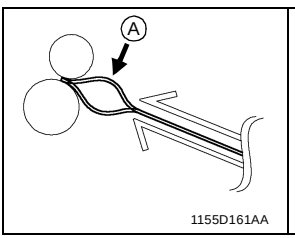


1. Open the Front Door and fit the Front Lower Door Interlock Switch Actuating Jig.



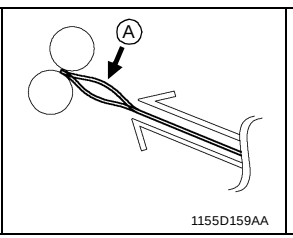
2. Slide out the Transport Tray, remove the lever, knob, and cover, and slide the Transport Tray back into the copier.

3. Press the Start key to let the copier take up and feed a sheet of paper and visually check that a correct loop is formed at part A of the location shown below.



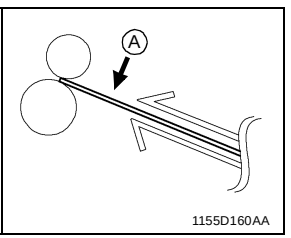
Advanced

The loop length is too long causing the paper to have too much slack.



Correct

A good length of loop is formed as the paper moves into the Synchronizing Rollers.



Retarded

No loop is formed causing the paper to be taut.

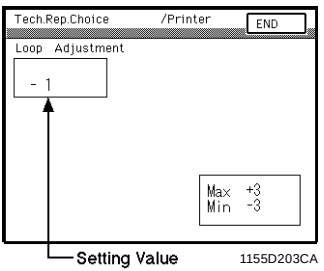
If the loop length falls outside the specified range, perform the following adjustment steps.

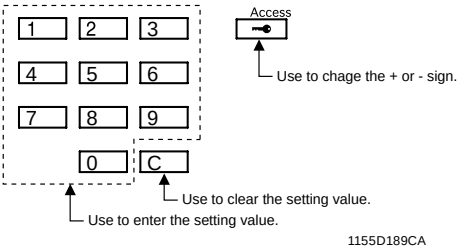
4. Call the Tech. Rep. mode to the screen.
5. Touch [Tech. Rep. Choice] and [Printer], in that order.
6. Touch [Loop Adjustment].
7. Use the 10-key Pad to change the setting value.

Setting Instructions

If loop length A is longer than the specifications, make the setting value smaller than the current one.
If length A is shorter than the specifications, make the setting value greater than the current one.

- *If a single adjustment procedure does not successfully bring length A into the specified range, try another setting value.*





8. Touch the [Enter] key to validate the setting value.

Caution

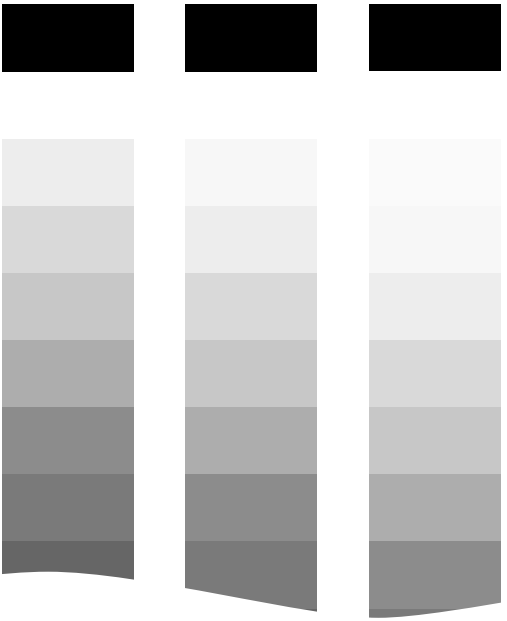
Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

15) γ Table

Requirement

The gradation on the test pattern output should fall within the range between the upper and lower limits when compared with the reference gradation.

<Reference Gradation>

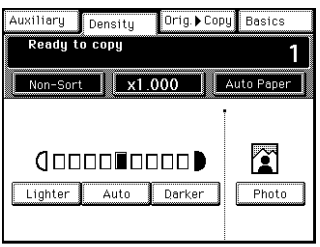


1138D349AA

NOTE

This adjustment must be made when the PC Drum has been replaced.

Adjustment Procedure



1155O230CB

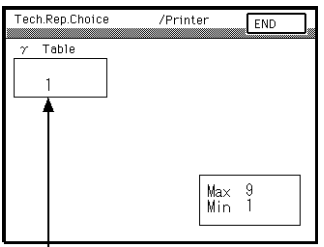
1. On the Basic screen, touch [Density] and then [Photo] to set the copier into the Photo mode.
2. Call the Tech. Rep. mode to the screen.
3. Touch [Function] and [Printer], in that order.
4. Touch [F12] test pattern output.
5. Select [F12-1] for the test pattern.

6. Press the Start key to let the copier produce a test pattern. Then, press the Stop key.
7. Compare the test pattern output with the reference gradation to determine if the output falls within the range between the upper and lower limits.
   If it falls outside the range, perform the following adjustment steps.
8. Call the Tech. Rep. mode to the screen.
9. Touch [Tech. Rep. Choice] and [Printer], in that order.
10. Touch [γ Table].
11. Use the 10-key Pad to change the setting value.

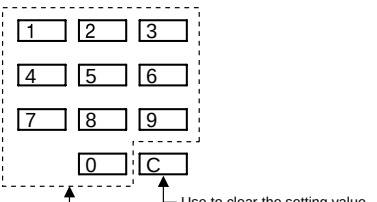
Setting Instructions

If the sample copy is darker than the reference gradation, make the setting value smaller than the current one.
If the sample copy is lighter than the reference gradation, make the setting value greater than the current one.

- *If a single adjustment procedure does not successfully bring the gradation level into the specified range, try another setting value.*



1155D202CA



1155D190CA

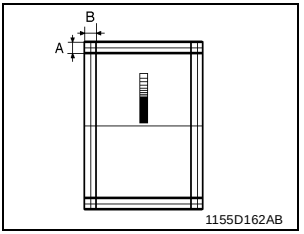
12. Touch the [Enter] key to validate the setting value.

Caution

Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

16) Erasure Width

Requirement



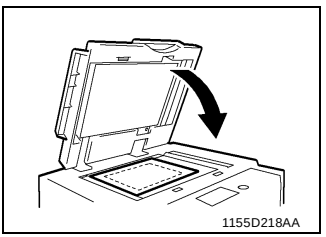
Adjust so that dimensions A and B on the copy of the test chart fall within the following specifications.

Zoom Ratio	Specification	Adjust Mode	Setting Range
Full size (×1.000)	3.0 mm	Erasure Width	0 to 5

NOTE

This adjustment must be made when a shadow is produced from the Original Scale.

Adjustment Procedure



1. Set “Lead Edge Erase” of the printer to 0. (See p. D-95 for the erase width setting procedure.)
2. Place the test chart on the Original Glass as shown on the left and then lower the Electronic Document Hander.
3. Make one copy on A3 or 11" × 17" paper in the full size mode.
4. Check if dimensions A and B on the copy meet the specification. If dimensions A and B deviate from the specification, adjust by following the procedure shown below.

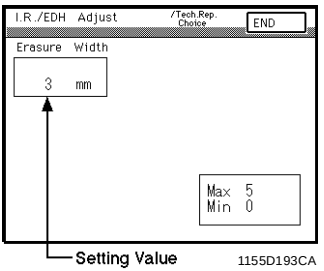
5. Call the Tech. Rep. mode to the screen.
6. Touch [I.R. (EDH) Check] and [Tech. Rep. Choice], in that order.
7. Touch [Erasure Width].

8. Use the 10-key Pad to change the setting value.

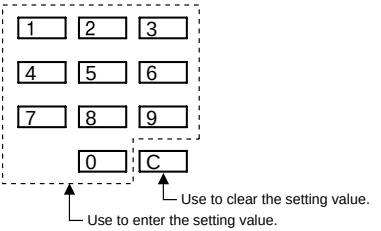
Setting Instructions

If width A/B on the copy of the test chart is longer than the specifications, make the setting value smaller than the current one.
If width A/B is shorter than the specifications, make the setting value greater than the current one.

- *If a single adjustment procedure does not successfully bring width A/B into the specified range, try another setting value.*



1155D193CA



1155D190CA

9. Touch the [Enter] key to validate the setting value.

Caution

Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

17) Zoom (CD)

Requirements

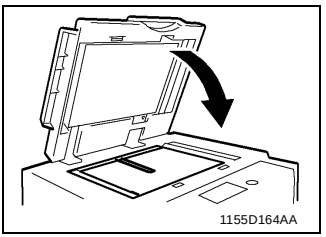
1) The difference should be within ± 0.5% of the actual length.
2) Adjust so that the following specifications are satisfied with a scale length of 200 mm.

Zoom Ratio	Specification	Adjust Mode	Setting Range
Full size (×1.000)	200 ± 1.0 mm	Zoom (CD)	0.990 to 1.010

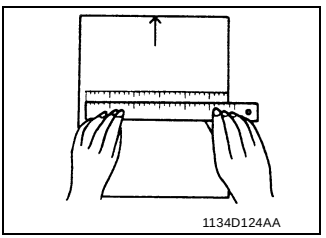
NOTE

This adjustment must be made when the CCD Unit has been replaced.

Adjustment Procedure



1. Place a scale in parallel with the Original Width Scale and make a copy.
   * Use the full size (×1.000) mode and 200-mm-or-wider paper.
   * If the scale is of plastic and transparent, place a blank sheet of paper over it.



2. Measure the length of the scale on the copy to find the difference.
   * If the difference is outside the specification, adjust by following the procedure shown below.

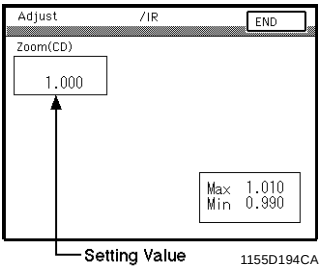
3. Call the Adjust mode to the screen.
4. Touch the [IR] key to highlight “Zoom (CD)”.

5. Use the 10-key Pad to change the setting value.

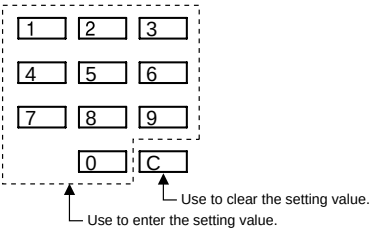
Setting Instructions

1) If the scale on the copy is longer than the actual scale, decrease the setting value.
2) If the scale on the copy is shorter than the actual scale, increase the setting value.

** If the measurement does not fall within the specifications through one setting, try another setting.*



1155D194CA



1155D190CA

6. Touch the [Enter] key to validate the setting.

NOTE

Be aware that the previous data is restored if the Panel Reset Key is pressed to return the copier to the normal operating state. Be sure to touch [Enter] and then [Exit] to resume the normal operating state.

18) Zoom (FD)

Requirements

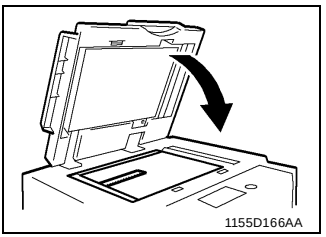
1) The difference should be within ± 0.5% of the actual length.
2) Adjust so that the following specifications are satisfied with a scale length of 300 mm.

Zoom Ratio	Specification	Adjust Mode	Setting Range
Full size (×1.000)	300 ± 1.5 mm	Zoom (FD)	0.990 to 1.010

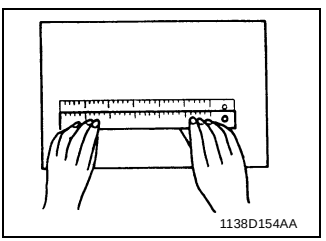
NOTE

This adjustment is to be made only if Zoom (CD) falls outside the specified range, as checked after the Scanner Drive Cable has been replaced.

Adjustment Procedure



1. Place a scale in parallel with the Original Length Scale (Perpendicular to the Original Width Scale) and make a copy.
   * Use the full size (×1.000) mode and A3 or 11" × 17" paper.
   * If the scale is of plastic and transparent, place a blank sheet of paper over it.



2. Measure the length of the scale on the copy to find the difference.
   * If the difference is outside the specification, adjust following the procedure shown below.

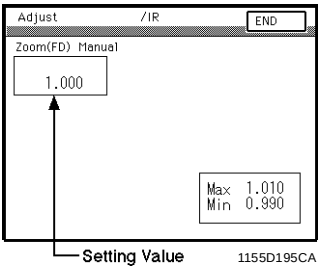
3. Call the Adjust mode to the screen.
4. Touch the [IR] key to highlight “Zoom (FD)”.

5. Use the 10-key Pad to change the setting value.

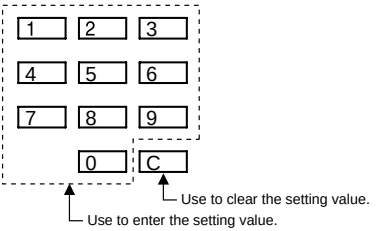
Setting Instructions

1) If the scale on the copy is longer than the actual scale, decrease the setting value.
2) If the scale on the copy is shorter than the actual scale, increase the setting value.

** If the measurement does not fall within the specifications through one setting, try another setting.*



1155D195CA



1155D190CA

6. Touch the [Enter] key to validate the setting.

NOTE

Be aware that the previous data is restored if the Panel Reset Key is pressed to return the copier to the normal operating state. Be sure to touch [Enter] and then [Exit] to resume the normal operating state.

19) Scale (CD)

Requirement

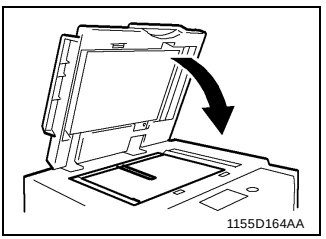
Adjust so that the leading edge of the image of the scale on the copy sample falls within the specified range with respect to the Original Width Scale.

Specification	Adjust Mode	Setting Range
0 ± 0.5 mm	Scale (CD)	-7.0 to +7.0

NOTES

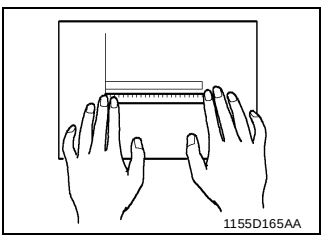
1) This adjustment must be made when the CCD Unit or Original Glass has been replaced.
2) After the adjustment, be sure return Erasure Width and Registration on the printer side to the original values.

Adjustment Procedure



1. Place a scale on the Original Glass so that it runs parallel with the Original Width Scale and its leading edge is aligned with the Original Length Scale.

2. Set Erasure Width to 0. (See p. D-102 for the erase width setting procedure.)
3. Set the registration of one paper source of Registration (CD) on the printer side to +5.0. (See p. D-91 for the registration setting procedure.)
4. Touch [END] and press the Interrupt key to set the copier into a test print mode.
5. Press the Start key to make a copy.



6. Check to see if the leading edge position of the image of the scale on the copy falls within the specifications with respect to the Original Width Scale.
   If it is outside the specified range, perform the following adjustment steps.

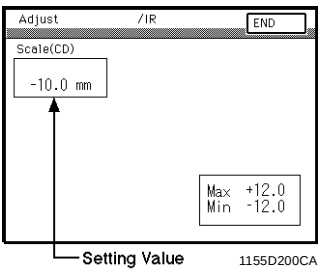
7. Call the Adjust mode to the screen.
8. Touch the [IR] Key to highlight “Scale (CD)”.

9. Use the 10-key Pad to change the setting value.

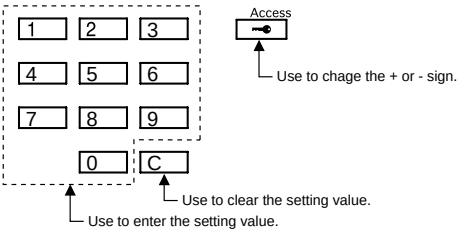
Setting Instructions

If the scale image on the copy is on the + end with respect to the Original Width Scale, make the setting value smaller than the current one.
If the scale image on the copy is on the - end with respect to the Original Width Scale, make the setting value greater than the current one.

- *If a single adjustment procedure does not successfully bring the leading edge image position into the specified range, try another setting value.*



1155D200CA



1155D189CA

10. Touch the [Enter] key to validate the setting value.

Caution

Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

20) Scale (FD)

Requirement

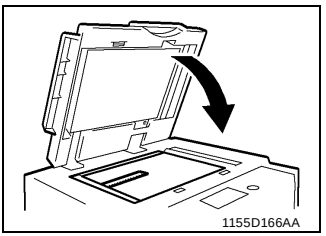
Adjust so that the leading edge of the image of the scale on the copy sample falls within the specified range with respect to the Original Length Scale.

Specification	Adjust Mode	Setting Range
0 ± 0.5 mm	Scale (FD)	-12.0 to +12.0

NOTES

1) This adjustment must be made when the Scanner has been removed or the Scanner Drive Cable or Original Glass has been replaced.
2) After the adjustment, be sure to return Erasure Width, Registration and Lead Edge Erase on the printer side to the original values.

Adjustment Procedure



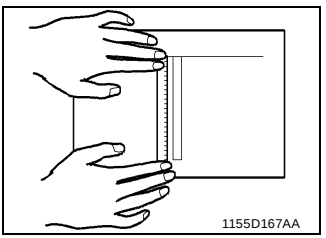
1. Place a scale on the Original Glass so that it runs parallel with the Original Length Scale and its leading edge is aligned with the Original Width Scale.

2. Set Erasure Width to 0. (See p. D-102 for the erase width setting procedure.)
3. Set the registration of one paper source of Registration (FD) on the printer side to +5.0. (See p. D-92 for the registration setting procedure.)

NOTE

If the total value of the settings made of the paper source, Duplex, and 600 dpi on "Registration (FD)" of "Printer" available from "Adjust" is +10 or more, malfunction code C13F4 can at times be shown.

4. Set Lead Edge Erase on the printer side to 0. (See p. D-94 for the erase width setting procedure.)
5. Touch [END] and press the Interrupt key to set the copier into a test print mode.
6. Press the Start key to make a copy.



7. Check to see if the leading edge position of the image of the scale on the copy falls within the specifications with respect to the Original Length Scale.
   If it is outside the specified range, perform the following adjustment steps.

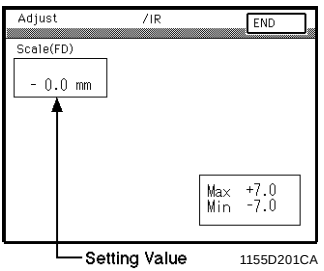
8. Call the Adjust mode to the screen.
9. Touch the [IR] Key to highlight "Scale (FD)".

10. Use the 10-key Pad to change the setting value.

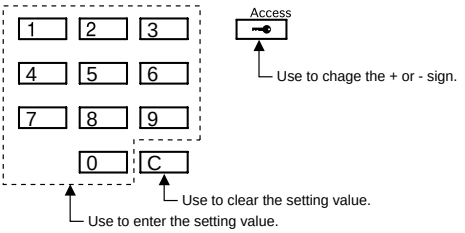
Setting Instructions

If the scale image on the copy is on the + end with respect to the Original Length Scale, make the setting value smaller than the current one.
If the scale image on the copy is on the - end with respect to the Original Length Scale, make the setting value greater than the current one.

- *If a single adjustment procedure does not successfully bring the leading edge image position into the specified range, try another setting value.*



1155D201CA



1155D189CA

11. Touch the [Enter] key to validate the setting value.

Caution

Be sure to touch the Enter key before returning to the normal operation mode. If the Panel Reset Key is used, the previous setting remains valid.

21) Focus-Positioning of the Scanner and 2nd/3rd Mirrors Carriage

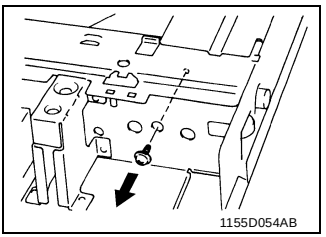
When is this adjustment required?

- After the Scanner Drive Cable has been replaced.
- When the Scanner Fixing Bracket has been removed from the Scanner Drive Cable.
- When the Scanner Drive Cable comes unwound.

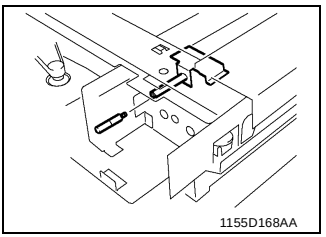
Requirement

With the Scanner fixed to the Scanner Drive Cables, there should be no gap between the Scanner/ Mirrors Carriage Positioning Jig and the Scanner and also between the Scanner/Mirrors Carriage Positioning Jig and the 2nd/3rd Mirrors Carriage.

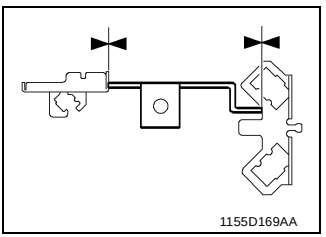
Adjustment Procedure



1. Remove the EDH, Upper Rear Cover, Right Upper Cover, Upper Right Cover, Original Glass Holder, and Original Glass.
2. Temporarily loosen the set screw of the cable holding plate of the Scanner Drive Cable.



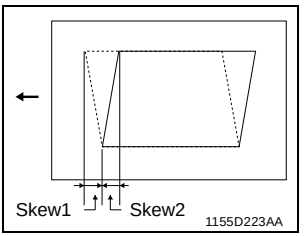
3. Fit the Scanner/Mirrors Carriage Positioning Jig in the space between the Scanner and 2nd/3rd Mirrors Carriage and tighten its fixing screw.



4. Press the Scanner up against the 2nd/3rd Mirrors Carriage and, at the same time, tighten the set screw of the cable holding plate.

22) 2nd/3rd Mirrors Carriage Height Adjustment

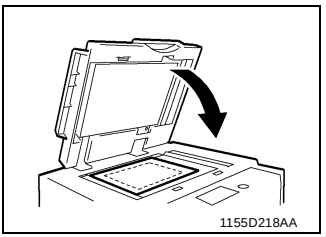
Requirement



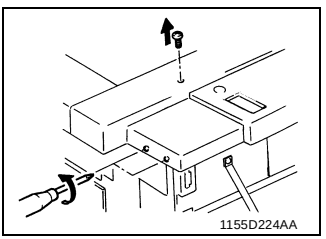
Adjust so that the amount of skew on the copy of the test chart falls within the following range.

Specification	Movable Range of Mounting Bracket
± 3.0 mm	± 1.5 mm

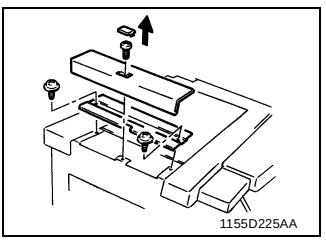
Adjustment Procedure



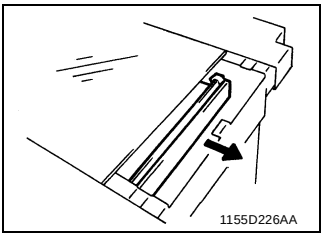
1. Place the test chart as shown on the left with reference to the Original Scale reference position and lower the EDH.
2. Make a full-size copy using A3 paper.
3. Check that skew on the copy of the test chart falls within the specified range. If it is outside the range, follow these steps to make an adjustment.



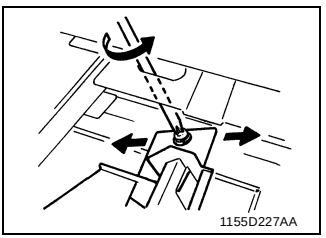
4. Remove two screws and the Left Upper Cover.
5. Loosen the two screws on the left side of the control panel and remove one screw on the upper left of the control panel.



6. Remove one screw and the Upper Left Cover.
7. Remove two screws and the Left Top Frame.



8. Slide the 2nd/3rd Mirrors Carriage to the right as viewed from the rear of the copier.



9. Loosen the screw for adjusting height of the 2nd/3rd Mirrors Carriage and move the mounting bracket as detailed below:.

Adjustment Procedure

If the skew is:

In the direction of skew 1: Move the mounting bracket to the left as viewed from the rear of the copier.

In the direction of skew 2: Move the mounting bracket to the right as viewed from the rear of the copier.

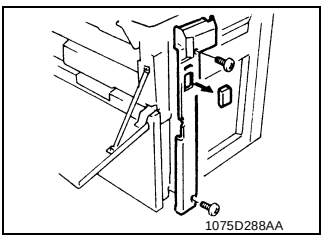
- *Use the following formula to find how much the mounting bracket should be moved:*
  Amount of skew ÷ 2 = Distance to move the mounting bracket

10. After the adjustment has been made, tighten the screw for adjusting height of the 2nd/3rd Mirrors Carriage.

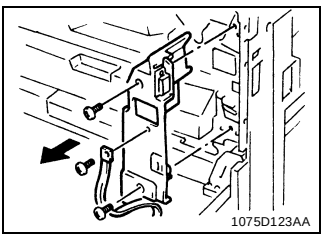
4. MISCELLANEOUS

1) INSTALLATION OF THE PLUG-IN COUNTER (OPTION) MOUNTING BRACKET

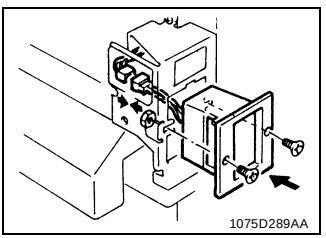
Installation Procedure



1. Remove the counter cover from the Right Front Cover.
2. Open the Front Lower Door.



3. Remove the Right Front Cover.
4. Remove the Total Counter cover.



5. Connect the connector (4-pin) of the Plug-In Counter mounting bracket.
6. Install the Plug-In Counter mounting bracket with one screw (at the rear) and one screw and nut (at the front).

NOTE

When the Plug-In Counter mounting bracket is installed, be sure to set "Key Counter" of "Security Mode" to "ON".

1. PRECAUTIONS FOR HANDLING THE PWBs

1151SBS0101A

1-1. Precautions for Transportation and Storage

- Before transporting or storing the PWBs, put them in protective conductive cases or bags so that they are not subjected to high temperature and they are not exposed to direct sunlight.
- Protect the PWBs from any external force so that they are not bent or damaged.
- Once the PWB has been removed from its conductive case or bag, never place it directly on an object that is easily charged with static electricity (such as a carpet or plastic bag).
- Do not touch the parts and printed patterns on the PWBs with bare hands.

1151SBS0102A

1-2. Precautions for Replacement and Inspection

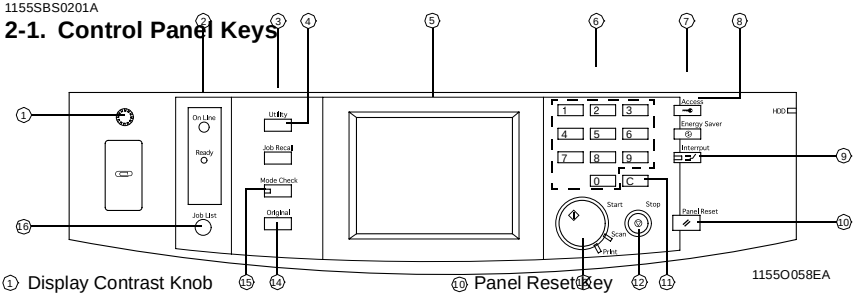
- Whenever replacing the PWB, make sure that the power cord of the copier has been unplugged.
- When the power is on, the connectors must not be plugged in or unplugged.
- Use care not to strap the pins of an IC with a metal tool.
- When touching the PWB, wear a wrist strap and connect its cord to a securely grounded place whenever possible. If you cannot wear a wrist strap, touch a metal part to discharge static electricity before touching the PWB.

2. CONTROL PANEL KEYS AND TOUCH PANEL

* For more details, see the “Operator’s Manual” shipped with the copier.

1155SBS0201A

2-1. Control Panel Keys



① Display Contrast Knob
- Turn to vary the brightness of the Touch Panel.

② On Line Key
- Press to select either on-line or off-line mode.

③ Utility Key
- Press to show the User Mode menu.

④ Job Recall Key
- Press to show the Job Recall screen on which you can recall or check a copy-job program previously stored in memory.

⑤ Touch Panel
- Shows various screens and messages.

⑥ 10-key Pad
- Numeric key pad used for entering the number of copies to be made, zoom ratio, access number, and the Tech. Rep. mode setting.

⑦ Access Mode Key
- When either “100 Accounts” or “1000 Accounts” has been selected for the “Copy Track” function, the entry of the access number and the press of this key (Access mode) will allow the user to make copies.

⑧ Energy Saver Key
- Set the copier into the Energy Saver mode.

⑨ Interrupt Key
- Sets the copier into, or lets it leave, the Interrupt mode.

⑩ Panel Reset Key
- Press to set the copier into the initial mode, clearing all settings made on the control panel.

Note: It does not clear the zoom ratios and job settings stored in memory and Interrupt mode.

⑪ Clear Key
- Clears the number-of-copies setting, zoom ratio, and counter count.

⑫ Stop Key
- Press to stop a scanning cycle.
- Press to stop a print cycle.

⑬ Start Key
- Press to start the document scanning sequence.
- Press to start a print cycle.

⑭ Original Key
- Press to select the Mixed Orig. Detection and other document-related functions setting screen.

⑮ Mode Check Key
- Shows the Mode Check screen on which the user can check the current copying settings.

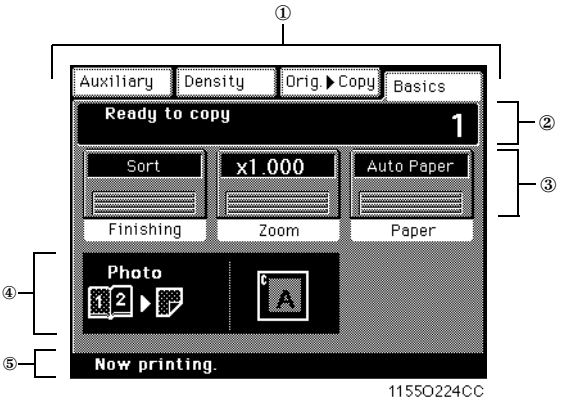
⑯ Job List Keys
- Press to check for the settings mode for a job (Mode Check), modify the settings of a job (Change), delete a job (Delete), and unlock a job (Unlock).

2-2. Explanation of the Touch Panel

1155SBS020201A

1) Basic Screen

- The Basic screen is an initial screen that appears when the copier is turned ON, panel is reset, or when auto clear is activated.



① Supplementary Function Keys

- Selects the corresponding menu screen, either Auxiliary, Density, Orig. ▶ Copy or Basics.

② Message Display

- Shows the current copier status, operating instructions, and other data including the number of copies selected and the amount of paper still available for use.

③ Basic Function Keys

- Allows the user to select the Finishing, zoom ratio, and copy paper.

④ Function Display

- Shows graphic representations of the settings currently made for Orig. ▶ Copy and Finishing.

⑤ Sub-message Display

Shows what is being done with the currently reserved job.

1149SBS020202A

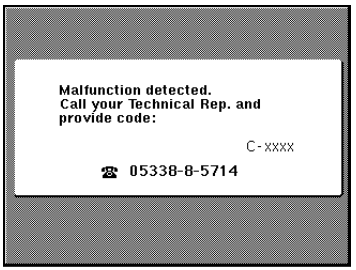
2) Warning Screens

- The warning screen may be a malfunction display, error display, warning display, or a caution display.

<Malfunction Display>

- A malfunction display is given when trouble occurs which cannot be corrected by the user.

Example: Malfunctions that can be identified with a specific code.

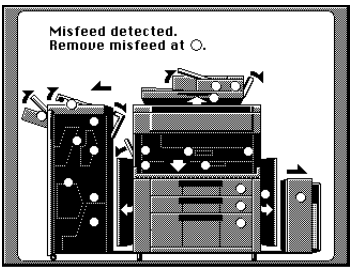


1155S004CA

<Error Display>

- An error display is given when trouble occurs which can be corrected by the user.

Example: Paper misfeed, toner empty, door open.

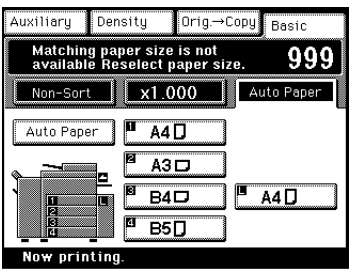


1155O632CA

<Warning Display>

- A warning display is given when any further copier operation will not be possible, or only faulty results will come out, due to erroneous panel settings or other cause.

Example: Unmatched paper size in Auto Paper.

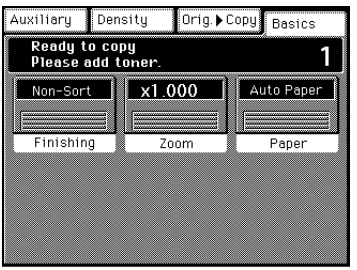


1155S006CA

<Caution Display>

- A caution display is given when, though further copier operation will be possible, it could result in a malfunction.

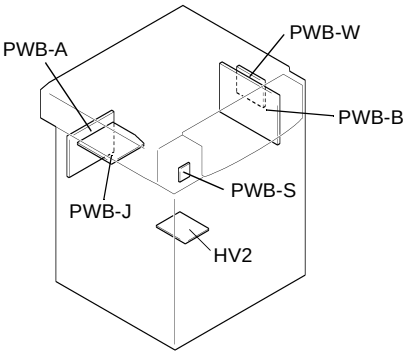
Example: Toner nearly empty.



1155O629CB

3. FUNCTIONS OF SWITCHES AND OTHER PARTS ON PWBs

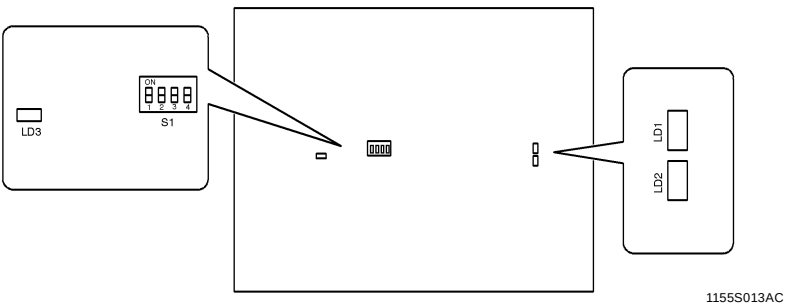
3-1. PWB Location



1155S001AC

1155SBS0302A

3-2. Master Board



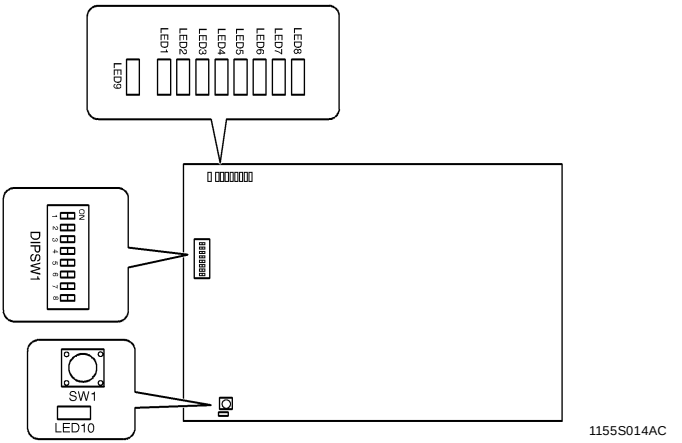
1155S013AC

Symbol	Name	Description
S1-1 S1-2 S1-3 S1-4	Factory-Setting Switches	Used when making factory settings. Note 1: NEVER use these switches in the field. Note 2: Normally set to “OFF” for all.

Symbol	Name	Description
LD1	Operation Check LED	Starts blinking at 1-second intervals when the Power Switch is turned ON.
LD2 LD3	Operation Check LED	Light up when the system is ready for operation.

1155SBS0303A

3-3. Memory Board



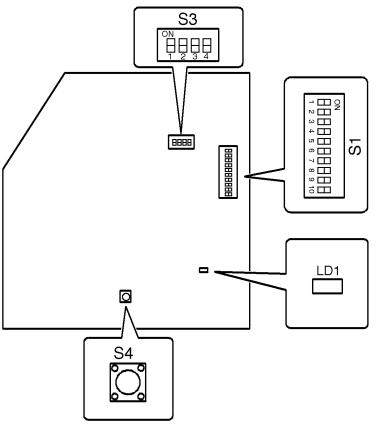
1155S014AC

Symbol	Name	Description
DIPSW1-1 DIPSW1-2	Expansion Memory Connection Switches	Used when an expansion memory is mounted. Expansion Memory / DIPSW1-1 / DIPSW1-2 Standard (16MB) / ON / OFF (36MB) / ON / ON
DIPSW1-3	Hard Disk Connection Switch	Used when a hard disk is mounted. Note: Flip "ON" when a hard disk is mounted. Hard Disk / DIPSW1-3 Mounted / ON Not mounted / OFF
DIPSW1-4 DIPSW1-5	External Interface (I/F) Connection Switches	Used when an external I/F is connected. I/F / DIPSW1-4 / DIPSW1-5 Copy/Printer / ON / OFF

Symbol	Name	Description
DIPSW1-6 DIPSW1-7 DIPSW1-8	Factory Check Switches	Used when making factory checks. Note 1: NEVER use these switches in the field. Note 2: Initial settings are “OFF” for all.
SW1	Memory Board CPU Reset Switch	Used to reset the CPU on the Memory Board.
LED1	Operation Check LED	Starts blinking at 0.5-second intervals when the Power Switch is turned ON.
LED2	Operation Check LED	Lights up when the system is ready for operation.
LED3	Compression Check LED (including reading)	Lit up during compression.
LED4	Expansion Check LED (including printing)	Lit up during expansion.
LED5	Fatal Error Check LED	Lights up when an error that is categorized as “fatal” occurs.
LED6	Error Check LED	Lights up when an error that is categorized as an “ordinary” error occurs.
LED7	Caution Check LED	Lights up when a condition that is categorized as a “caution” occurs.
LED8	Attention Check LED	Lights up when a condition that is categorized as “attention” occurs.
LED9	Power Check LED	Lights up when power is supplied to the Memory Board.
LED10	Reset Check LED	Lights up when the Memory Board is reset.

1155SBS0304A

3-4. PHC Board

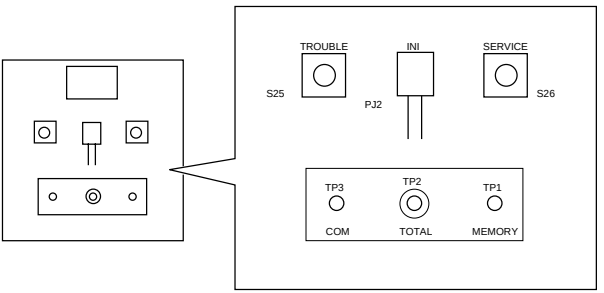


1155S015AC

Symbol	Name	Description
S1-1 S1-2 S1-3 S1-4 S1-5 S1-6 S1-7 S1-8 S1-9 S1-10	Factory Adjustment/ Check Switches	Used when making factory adjustments/checks. Note 1: NEVER use these switches in the field. Note 2: Initial settings are “OFF” for all.
S3-1 S3-2 S3-3 S3-4	Factory Adjustment Switches	Used when making factory adjustments. Note: NEVER use these switches in the field.
S4	PHC Board CPU Reset Switch	Used to reset the CPU on the PHC Board.
LD1	Laser Power Setting/ Check LED	Lights up or goes out when the laser power is set.

1155SBS0305A

3-5. Tech. Rep. Settings Switches Board



1155S002AA

Symbol	Name	Description
S25	Trouble Reset Switch	Resets a malfunction including those of the Exposure Lamp (C04XX) and fusing (C05XX).
S26	Tech. Rep Setting Switch	Sets the copier into the Tech. Rep. mode.
PJ2	Initialize Switch	Forcibly resets a misfeed or malfunction that occurs due to incorrect operation, etc. when it cannot be reset by opening and closing the Front Door or pressing S25.
TP1	Memory Clear Test Point	Clears all data other than the counts of electronic counters, settings of “Adjust,” and those that are Copy Track-related and DT-related.
TP3	GNP Test Point	Ground terminal used for memory clear.

<Clearing Procedures>

- Initialize Point PJ2
  1. Turn ON the Power Switch.
  2. Create a closed circuit across the pins of PJ2.
  3. Turn OFF the Power Switch, wait for 5 sec., then turn it ON again.
  4. Open the circuit of PJ2.
  5. Five sec. after the Power Switch has been turned ON, make sure that the message “Initialize Completed” appears on the Touch Panel. If it does, touch [ENTER].

- Memory Clear Test Point TP1
  1. Turn ON the Power Switch
  2. Create a closed circuit across TP1 and 3.
  3. Turn OFF the Power Switch, wait for 5 sec., then turn it ON again.
  4. Open the circuit across TP1 and 3.
  5. Five sec. after the Power Switch has been turned ON, make sure that the message “Memory Clear Completed” appears on the Touch Panel. If it does, touch [ENTER].

.

NOTE

1) If an erratic operation or display occurs, perform the clearing procedures in the order of PJ2 and TP1.
2) When memory clear has been performed, make the necessary settings again.

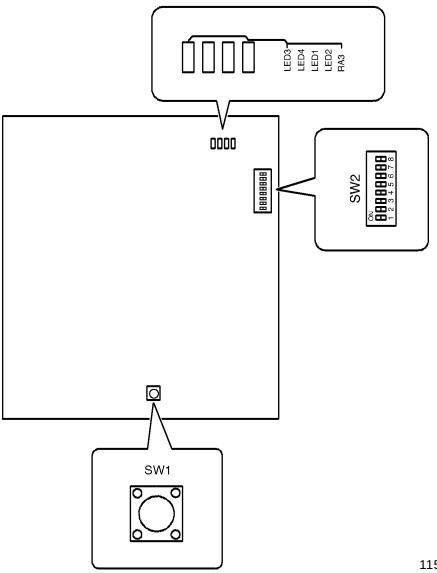
<List of Data Cleared by Switches and Points>

Clearing Means / Data Cleared	Front Door Open/Close	Trouble Reset Switch (S25)	Initialize Points (PJ2)	Memory Clear Test Point (TP3)
Misfeed display	❍	❍	❍	❍
Malfunction display (excluding Exposure Lamp and fusing malfunctions)	❍	❍	❍	❍
Malfunction display (including Exposure Lamp and fusing malfunctions)	–	❍	❍	❍
Erratic operation/display	–	–	❍	❍
User mode	–	–	–	❍
Tech. Rep. mode	–	–	–	❍
System input	–	–	–	❍
Level history	–	–	–	❍
Security mode	–	–	–	❍
Adjust mode	–	–	–	–

❍ : Cleared – : Not cleared:

1155SBS0306A

3-6. ECC Board

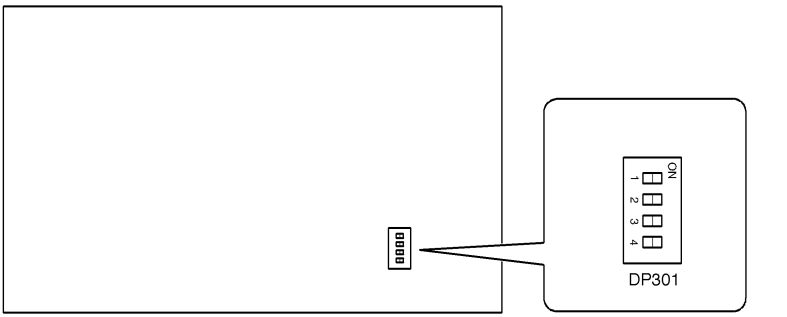


1155S016AC

Symbol	Name	Description
SW1 SW2-1 SW2-2 SW2-3 SW2-4 SW2-5 SW2-6 SW2-7 SW2-8	Factory-Setting Switches	Used when making factory settings. Note 1: NEVER use these switches in the field. Note 2: All should be set to “OFF.”
LED1	Operation Check LED	Starts blinking at 0.5-sec. intervals when the Power Switch is turned ON.
LED2	Error Check LED	Lights up when an error occurs.
LED3	SCSI Communications Check LED	Lights up when SCSI communications are possible.
LED4	Initialization Completion Check LED	Lights up if initialization is completed.

1155SBS0307A

3-7. Image Transfer/Paper Separator HV



1155S017AA

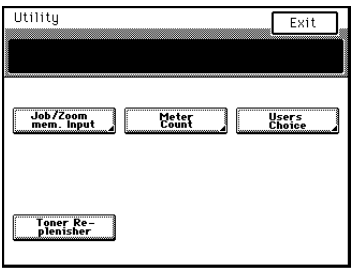
Symbol	Name	Description
DIP301-1 DIP301-2 DIP301-3 DIP301-4	Paper Separator Corona Output Fine-Adjustment Switches	When traces of the PC Drum Paper Separator Fingers are evident on the copy, adjust the Paper Separator Corona output to change it for a greater value. Note 1: Change the positions of DIP301-1 and 2 for the copy made in the first copy cycle, and DIP301-3 and 4 for the copy made in the second copy cycle. Note 2: Changing the setting could result in AC mark occurring on the copy. Note 3: Check for image quality after the Paper Separator Corona wire has been replaced.

Corona Output	DIP 301-1	DIP 301-2	DIP 301-3	DIP 301-4
Low	OFF	OFF	OFF	OFF
↓	ON	OFF	ON	OFF
↓	OFF	ON	OFF	ON
High	ON	ON	ON	ON

4. USER'S CHOICE MODE

- The User's Choice mode available through the Utility key is used to make various settings according to the user's needs.

4-1. User's Choice Selection Screen



1155S018CA

1155SBS0402A

4-2. User's Choice Function Setting Procedure

<Setting Procedures>

1. Press the Utility key on the control panel and then touch the "User's Choice" key.
2. Select the page number key that contains the desired function from among 1/6 through 6/6 shown at the bottom of the Touch Panel.
3. Select the function to be set and make settings as required.
4. After the settings are complete, touch the "Enter" key to validate the settings.

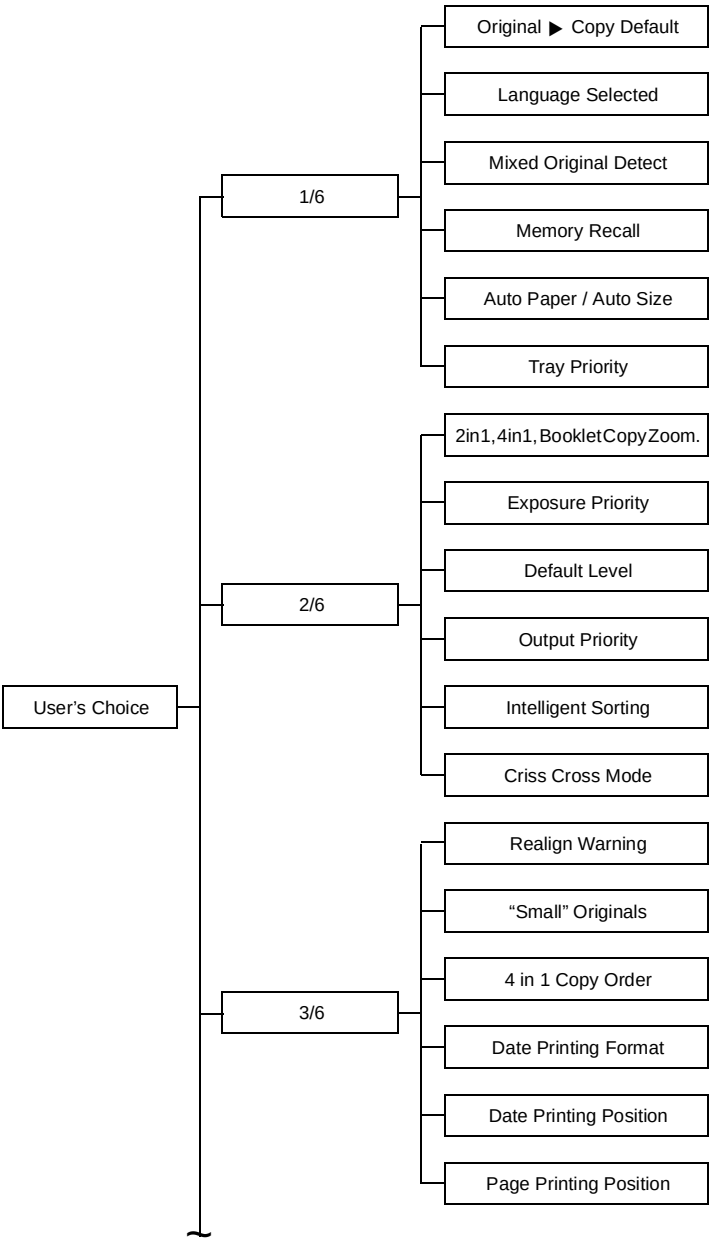
Note: The function selected is highlighted.

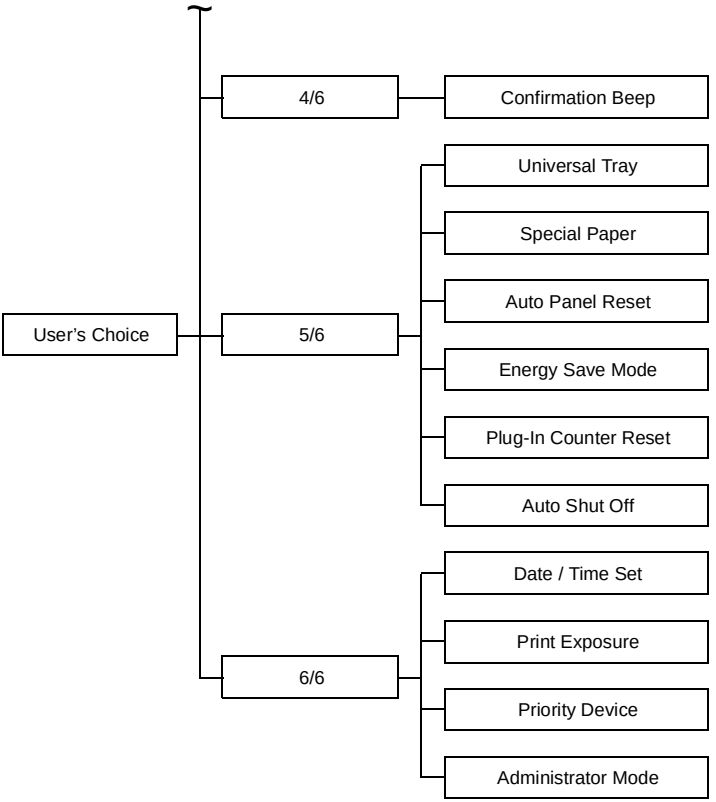
<Exiting the Mode>

Perform any one of the following steps to go back to the Basic screen.

- Press the Panel Reset key on the control panel.
- Touch "Exit" on the Touch Panel.

4-3. User's Choice Function Tree




User's Choice
4/6
Confirmation Beep
5/6
Universal Tray
Special Paper
Auto Panel Reset
Energy Save Mode
Plug-In Counter Reset
Auto Shut Off
6/6
Date / Time Set
Print Exposure
Priority Device
Administrator Mode

4-4. Settings in the User's Choice

[1/6]

1155SBS040401A

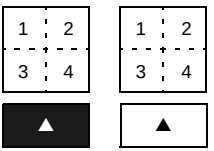
<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>Original ▶ Copy Default</td><td>Select the type of Original ▶ Copy setting selected automatically when the copier is turned ON or Panel Reset key pressed. If "Duplex only" is selected for "Simplex /Duplex" of the "Tech. Rep. Choice" function, 1 ▶1 is not displayed.
<1-Sided ▶2-Sided>
<table>
<tr><td>1-Sided ▶
2-Sided</td><td>2-Sided ▶
2-Sided</td><td>1-Sided ▶
1-Sided</td></tr>
</table>
<1-Sided ▶2-Sided>
<table>
<tr><td>1-Sided ▶
2-Sided</td><td>2-Sided ▶
2-Sided</td></tr>
</table>
</td></tr>
<tr><td>Language Selection</td><td>Select the language of the Touch Panel messages.
<Metric Areas>
<table>
<tr><td>ENGLISH</td><td>GERMAN</td><td>FRENCH</td></tr>
<tr><td>DUTCH</td><td>ITALIAN</td><td>SPANISH</td></tr>
<tr><td>PORTUGUESE</td><td>DANISH</td><td>NORWEGIAN</td></tr>
<tr><td>SWEDISH</td><td>FINISH</td><td>JAPANESE</td></tr>
</table>
<Inch Areas>
<table>
<tr><td>ENGLISH</td><td>FRENCH</td><td>SPANISH</td></tr>
<tr><td>JAPANESE</td></tr>
</table>
</td></tr>
<tr><td>Mixed Original Detection</td><td>Select whether to enable ("ON") the Mixed Original Detection mode or not ("OFF") when power is turned ON or the Panel Reset Key pressed.
<table>
<tr><td>ON</td><td>OFF</td></tr>
</table>
</td></tr>
<tr><td>Memory Recall</td><td>Select whether to enable ("ON") or disable ("OFF") the function that retains the image data even after the last copy paper has been fed out, allowing the user to recall the same image data.
<table>
<tr><td>ON</td><td>OFF</td></tr>
</table>
</td></tr>
<tr><td>Auto Paper / Auto Size</td><td>Specify the default mode selected automatically when power is turned ON or the Panel Reset key pressed.
<table>
<tr><td>Auto Paper</td><td>Auto Size</td><td>Manual</td></tr>
</table>
</td></tr>
<tr><td>Paper Priority</td><td>Specify the paper source selected automatically.
<table>
<tr><td>1st Drawer</td></tr>
<tr><td>2nd Drawer</td></tr>
<tr><td>3rd Drawer</td></tr>
<tr><td>4th Drawer</td></tr>
<tr><td>LCT</td></tr>
</table>
</td></tr>
</table>

1155SBS040402A

Touch Panel Display	Setting (The default is **Highlighted** .)
2 in 1, 4 in 1, Booklet Copy Zoom	Select whether to enable (“ON”) or disable (“OFF”) recalling a default zoom ratio for 2in1, 4in1, or Booklet Creation. **ON** | OFF
Exposure Priority	Specify the default exposure mode selected automatically when power is turned ON or the panel Reset key pressed. **Auto Exposure** | Manual
Default Level	Auto: Select the default exposure level in the Auto Exposure mode. Manual: Set the default exposure level in the Manual Exposure mode. <Auto Exposure> Lighter | **Normal** | Darker <Manual Exposure> Lighter | Darker Note: EXP. 1 (Lighter) to EXP. 9 (Darker)
Output Priority	Select the default finishing type when the copier is equipped with a Sorter or Staple Sorter. **Non-Sort** Sort Group + Corner Staple 2-Point Staple Note: Staple can be combined with either Sort or Group. Hole-Punch Note: Hole Punch can be combined with any one of the functions.
Intelligent Sorting	Select whether to turn “ON” or “OFF” the function that automatically switches between Sort and Non-Sort according to the number of originals loaded in the document feeder. **ON** | OFF
Criss Cross Mode	Select whether to enable (“ON”) or disable (“OFF”) crisscross sorting automatically. **ON** | OFF

[3/6]

1155SBS040403A

Touch Panel Display	Setting (The default is **Highlighted** .)
Realing Warning	Select whether to give (“ON”) a warning message or not (“OFF”) by automatically detecting an original placed out of alignment on the Glass. ON | **OFF**
“Small” Originals	Select whether to enable (“ON”) a copy cycle or not (“OFF”) when it is initiated by pressing the Start key with an original of the smallest detectable size (metric areas: A5 or smaller, inch areas: Letter or smaller) placed on the Original Glass. ON: The copy cycle is run using the paper loaded in the default paper source. **OFF**: A warning message is given and the copier inhibits the start of this copy cycle. Note: The default setting is OFF for the metric areas and ON for the inch areas.
4 in 1 Copy Order	Specify the default copying order in the 4in1 mode. 
Date Printing Format	Select the delimiter and format for date printing. <Punctuation> **XX/XX/XX** | XX.XX.XX <Date Format> **’97 / 12 / 27** | DEC / 27 / ’97 | 27 / DEC / ’97 12 / 27 / ’97 | 27 / 12 / ’97
Date Printing Position	Set the position at which to print the date. <Metric Areas> X: (4 to 40) **(8mm)** Y: (4 to 40) **(20mm)** <Inch Areas> X: (3/16 to 1 9/16”) **(1 7/6”)** Y: (3/16 to 1 9/16”) **(1 7/6”)**
Page Number Position	Set the position at which to print the page number, how many millimeters or inches from the bottom of the page. <Metric Areas> (4 to 40) **(8mm)** <Inch Areas> (3/16 to 1 9/16”) **(1 7/6”)**

[4/6]

1155SBS040404A

Touch Panel Display	Setting (The default is **Highlighted** .)
Confirmation Beep	Select whether to run “ON” or “OFF” the beep that sounds each time a key on the control panel is pressed or that on the Touch Panel is touched. **ON** | OFF

1155SBS040405A

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>Universal Tray</td><td>Select the default paper size detection for the Universal Tray.
<table>
<tr><td>Auto Detect</td><td>Custom Size</td></tr>
</table>
If Custom Size is selected, set the size for X and Y.
<Metric Areas>
<table>
<tr><td>X</td><td>(4 to 40) (8mm)</td></tr>
<tr><td>Y</td><td>(4 to 20) (20mm)</td></tr>
</table>
<Inch Areas>
<table>
<tr><td>X</td><td>(7 1/4” to 17”) (11”)</td></tr>
<tr><td>Y</td><td>(5 1/2” to 11 3/4”) (8 1/2”)</td></tr>
</table></td></tr>
<tr><td>Special Paper</td><td>Set up drawer for special paper loading.
<table>
<tr><td>Normal</td><td>Cover / Insert</td></tr>
<tr><td>Recycled</td><td>Cover</td></tr>
<tr><td>Not for 2-sided</td><td>Insert</td></tr>
</table></td></tr>
<tr><td>Auto Panel Reset</td><td>Specify the default exposure mode selected automatically when power is turned ON or the Panel Reset key pressed.
<table>
<tr><td>30 seconds</td><td>1 min.</td><td>2 min.</td></tr>
<tr><td>3 min.</td><td>5 min.</td><td>No Reset</td></tr>
</table></td></tr>
<tr><td>Energy Saver Mode</td><td>Set the time it takes the copier to enter the Energy Saver mode after a copy cycle has been completed or the last key operated. Use the 10-key Pad to set the time (1 to 240 min.)
<table>
<tr><td>(1 to 240) (15 min.)</td></tr>
</table></td></tr>
<tr><td>Plug-In Counter Reset</td><td>Select whether to reset the panel or not when the Plug-In Counter is pulled out of the copier, a magnetic card is pulled out of the Data Controller, or the Access Mode key is pressed.
<table>
<tr><td>ON</td><td>OFF</td></tr>
</table></td></tr>
<tr><td>Auto Shut Off</td><td>Select whether to turn ON or OFF the Auto Shut Off function that shuts down the copier a given period of time after a copy cycle has been completed or the last key operated.
Selecting “ON” means setting the time it takes the Auto Shut Off function to be activated, that can range from 15 min. to 240 min.
<table>
<tr><td>No Reset</td><td>(15 to 240) (90 min.)</td></tr>
</table>
Note: “OFF” is displayed when “Enable” is selected for “Non-Auto Shut Off” of the “Administrator Mode” function.</td></tr>
</table>

1155SBS040406A

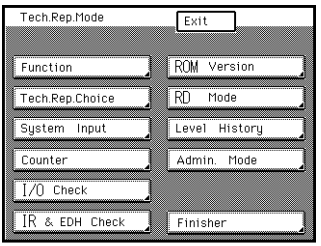
<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>Date / Time Set</td><td>Set the date and time of day for Date Printing.
<table>
<tr><td>Year</td><td>1990 to 2089</td><td>Month</td><td>1 to 12</td></tr>
<tr><td>Day</td><td>1 to 31</td><td>Time</td><td>00 to 23 (hour)
00 to 59 (min)</td></tr>
</table></td></tr>
<tr><td>Print Exposure</td><td>Select the print exposure level.
<table>
<tr><td>Lighter</td><td>Normal</td><td>Darker</td></tr>
</table></td></tr>
<tr><td>Priority Device</td><td>Select the primary configuration of the Di620.
<table>
<tr><td>Copier</td><td>Printer</td></tr>
</table></td></tr>
<tr><td>Administrator Mode</td><td>Entry of the “Administrator #” set using the Tech. Rep. mode permits the setting of the following functions.</td></tr>
<tr><td>Copy Track</td><td>Select the number of accounts to be controlled.
<table>
<tr><th></th><th>Copy Track</th><th></th></tr>
<tr><th><Copier></th><th><Printer></th><th>Copy Track method</th></tr>
<tr><td>ON</td><td>ON</td><td>100 Accounts</td></tr>
<tr><td>OFF</td><td>OFF</td><td>1000 Accounts</td></tr>
</table></td></tr>
<tr><td>Copy Track</td><td>The function is displayed when the above “Copy Track” setting is changed, prompting you to select whether to initialize (“YES”) the copy track data so far taken or not (“NO”).
<table>
<tr><td>Yes (initialize)</td><td>No (do not initialize)</td></tr>
</table></td></tr>
<tr><td>Copy Track Data</td><td>When “Count Reset” is touched, it clears all data under control.</td></tr>
<tr><td>1/20
•
•
•
19/20</td><td><100 Accounts>
The copy track data of the selected page is displayed (Account No., Total Counter, Size Counter, Limit, ID).
“Count Reset” : Clears the total and size counters of all accounts.
“No.” : Enter the set account number from the 10-key Pad.
“Total” : Displays the count of the Total Counter. (It can also be cleared with the Clear key.)
“Size” : Displays the count of the Size Counter. (It can also be cleared with the Clear key.)
“Limit” : Enter the maximum number of copies that can be made from the 10-key Pad.
“ID #” : Enter the access number (0001 to 9999) from the 10-key Pad.</td></tr>
<tr><td>1~
•
•
•
901~</td><td><1000 Accounts>
The copy track data of the selected page is displayed.
“Count Reset” : Clears the total and size counters of all accounts.
“No.” : Enter the set account number from the 10-key Pad.
“Total” : Displays the count of the Total Counter. (It can also be cleared with the Clear key.)
Note : The entry of an access number is not possible, with 1 to 1000 corresponding to the ID numbers.</td></tr>
</table>

Touch Panel Display	Setting (The default is **Highlighted** .)
Administrator Mode	–
Max. Copy Sets	Determine the number of copies or copy sets that can be set using the 10-key Pad. 1 to 99 / **OFF**
User Help	Set the user help code to be transmitted by the user to the Center using the EP-NET.
Non-Auto Shut Off	Select whether to enable or disable the setting of the “Auto Shut Off” function available from User’s Choice. **Disable**: “OFF” key is not displayed. Enable: “OFF” key is displayed.

5. TECH. REP. MODE

- This mode is used by the Tech. Rep. to set, check, adjust, and/or program various service functions.

5-1. Tech. Rep. Mode Menu Screen



1155S008CA

1155SBS0502A

5-2. Tech. Rep. Mode Function Setting Procedure

<Setting Procedure>

1. Either one of the following two steps may be used to set the copier into the Tech. Rep. mode:
   1) With the copier turned ON, press the Tech. Rep. Setting Switch.
   2) With the Meter Count screen opened from Utility, press the following keys in this order:

Stop Key → 0 → 0 → Stop Key → 0 → 1

2. Select the particular Tech. Rep. mode function to be set.

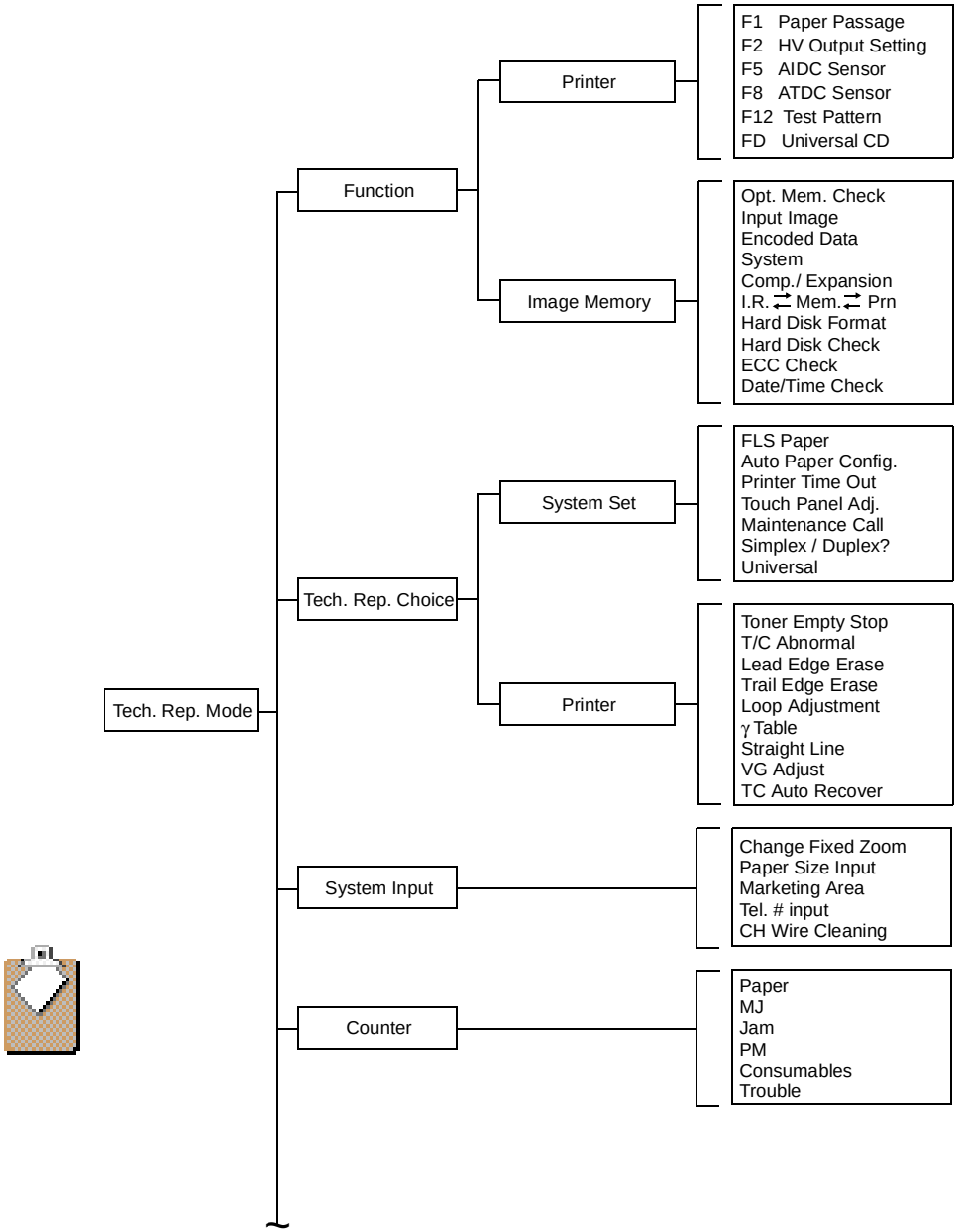
3. Make the necessary settings by following the instructions given sequentially on the screen.

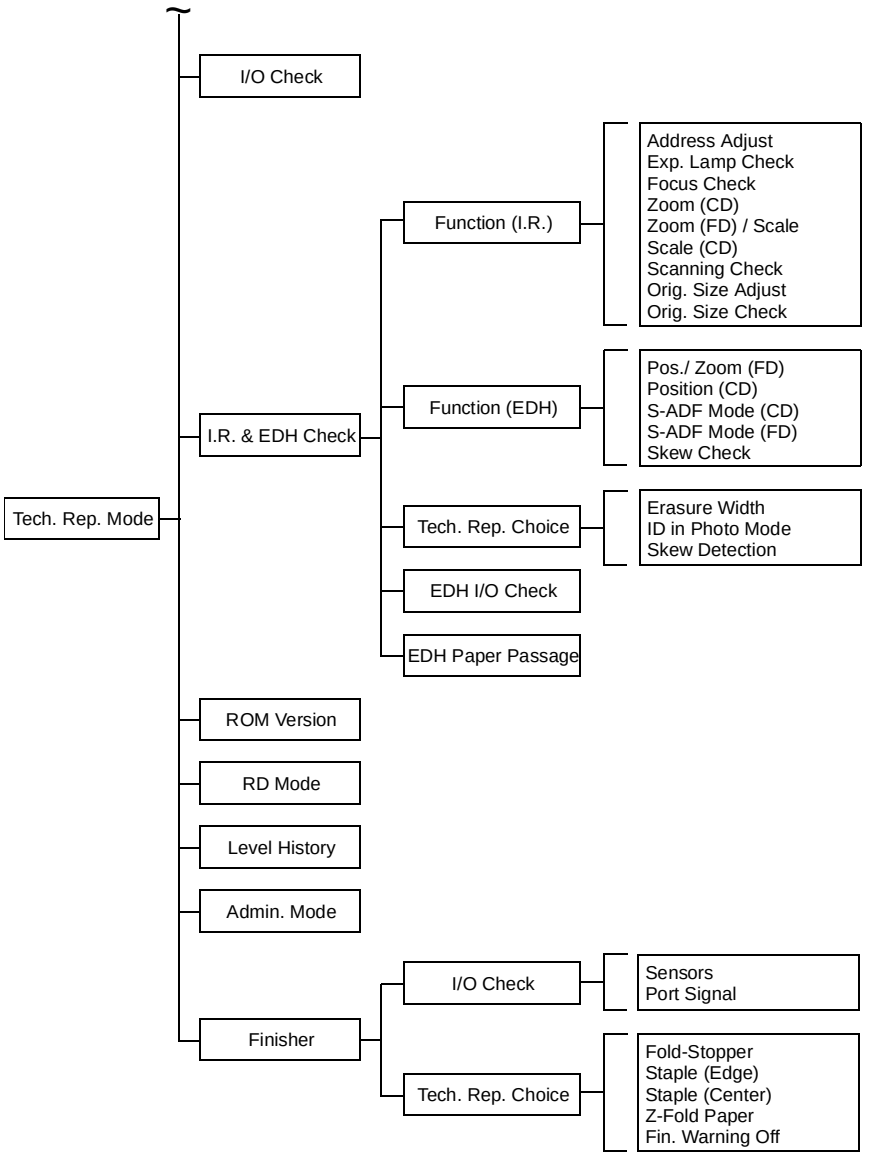
Note: The function selected is highlighted.

<Exiting the Mode>

- Touch [Exit] on the screen to go back to the Basic screen.

5-3. Tech. Rep. Mode Function Tree




Tech. Rep. Mode
I/O Check
I.R. & EDH Check
Function (I.R.)
Address Adjust
Exp. Lamp Check
Focus Check
Zoom (CD)
Zoom (FD) / Scale
Scale (CD)
Scanning Check
Orig. Size Adjust
Orig. Size Check
Function (EDH)
Pos./ Zoom (FD)
Position (CD)
S-ADF Mode (CD)
S-ADF Mode (FD)
Skew Check
Tech. Rep. Choice
Erasure Width
ID in Photo Mode
Skew Detection
EDH I/O Check
EDH Paper Passage
ROM Version
RD Mode
Level History
Admin. Mode
Finisher
I/O Check
Sensors
Port Signal
Tech. Rep. Choice
Fold-Stopper
Staple (Edge)
Staple (Center)
Z-Fold Paper
Fin. Warning Off

5-4. Settings in the Tech. Rep. Mode

1155SBS050401A

1) Function

- This function allows the Tech. Rep. to make the various function tests and adjustments.

<Functions>

1) Printer.....Used for making the various function tests and adjustments for the printer.
2) Image Memory.....Used for making the various function tests and adjustments for image memory.

<Setting Procedure>

1. Touch [Function] to open a screen to select Printer or Image Memory.
2. Touch either [Printer] or [Image Memory] as necessary.
3. Select the particular function to be run.

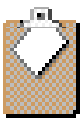
Tech. Rep. Mode ▶ Function

<Printer>

Touch Panel Display	Operation
F1 Paper Passage	A paper passage test is carried out after the copier has completed warming up. <Procedure> 1. Select the paper source key. (Touch [Duplex] to check for paper passage from the Duplex Unit.) Note: If the paper source is not loaded with paper, an Add Paper mark appears at that source. 2. Press the Start key to start the test cycle. The test runs until the paper source runs out of paper. 3. If the Stop key is pressed, the copier feeds the current sheet of paper out before halting. (Another press of the Start key will resume the test cycle.)
F2 HV Output Setting	Set the output of each HV. Note: This function is only for factory setting and should never be used in the field.
F5 AIDC Sensor	Automatically adjusts the AIDC Sensor. <Procedure> Press the Start key to start the adjustment sequence. Note: The copier automatically stops as soon as it completes the adjustment. The Stop key may, however, be pressed to halt the sequence.
F8 ATDC Sensor	Automatically adjusts the ATDC Sensor. <Procedure> Press the Start key to start the adjustment sequence. Note 1: The copier automatically stops as soon as it completes the adjustment. The Stop key may, however, be pressed to halt the sequence. Note 2: Since the adjustment is made based on the current toner-to-carrier (T/C) ratio, run this function only when the starter has been replaced. Running an F8 operation at any other timing results in incorrect image density on the print. Note 3: The ATDC Sensor control voltage automatically adjusted by this function is stored in memory as the current value for “ATDC Control” of “Adjust.” The data is also given for the “ATDC Set” value, an item of the “Level History” display available from the Tech. Rep. mode.

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>F12 Test Pattern</td><td>Outputs the selected test pattern either in 400 dpi or 600 dpi.
Note: When Duplex is selected, the test pattern is output on paper fed out of the Duplex Unit.
The following test pattern output types are available:
<table>
<tr><th>Display</th><th>Type</th><th>Display</th><th>Type</th></tr>
<tr><td>F12-0</td><td>Dots</td><td>F12-5</td><td>ID self-print pattern</td></tr>
<tr><td>F12-1</td><td>Gradation (20-mm-pitch)</td><td>F12-6</td><td>Double-dot pattern</td></tr>
<tr><td>F12-2</td><td>Solid halftone</td><td>F12-7</td><td>Slant net pattern</td></tr>
<tr><td>F12-3</td><td>64 dot grid</td><td>F12-8</td><td>2 dot line pair pattern</td></tr>
<tr><td>F12-4</td><td>Solid black</td><td>F12-9</td><td>LD beam position correction pattern</td></tr>
</table>
<Procedure>
1. Select either 400 dpi or 600 dpi.
Note: 400 dpi only for F12-1 and 2.
2. Select the desired pattern type and paper source. (Touch [Duplex] for test pattern output on paper fed from the Duplex Unit.)
Note: If the paper source is not loaded with paper, an Add Paper mark appears at that source.
3. Press the Start key to start the output sequence. (It continues until the paper source runs out of paper.)
4. Press the Stop key to halt the sequence.</td></tr>
<tr><td>FD Universal CD</td><td>Sets the maximum and minimum voltage values corresponding to the width of the Universal Tray in the CD direction.
<Procedure>
1. Select either the minimum reference value or maximum reference value.
2. For the minimum reference value, slide the Edge Guide to the minimum width (B5Y crosswise) and press the Start key.
For the maximum reference value, slide the Edge Guide to the maximum width (A4 crosswise) and press the Start key.
Note: The copier automatically stops as soon as it completes setting the voltage. The Stop key may, however, be pressed to halt the sequence.</td></tr>
</table>

<Image Memory>



<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Opt. Mem. Check</td><td>Checks for the connection of optional memory.
Note: Encoder: Shows on the Touch Panel the capacity of the encoder memory set for the copier.
Hard Disk: Shows on the Touch Panel whether a Hard Disk is connected to the copier.
Interface: Shows on the Touch Panel whether an external interface is connected to the copier.</td></tr>
</table>

Touch Panel Display	Operation
Input Image	Checks for correct copy image by writing data in the image input memory and reading it out for exact correspondence when the copy image is defective. Note: The Touch Panel shows the percentage of processing completed of each diagnostic sequence and the number of diagnostic sequences carried out. If a fault is encountered, it gives the message of "NG" together with the address at which the fault occurred. <Procedure> 1. Press the Start key to start the diagnostic sequence. 2. Press the Stop key to halt the sequence.
Encoded Data	If an error (malfunction code) frequently occurs as a result of expansion failure, this function writes data to the page memory and reads it out to check for exact correspondence. Note: The Touch Panel shows the percentage of processing completed of each diagnostic sequence and the number of diagnostic sequences carried out. If a fault is encountered, it gives the message of "NG" together with the address at which the fault occurred. <Procedure> 1. Press the Start key to start the diagnostic sequence. 2. Press the Stop key to halt the sequence.
System	When the system performs an erratic operation, this function writes data to the system memory and reads it out to check for exact correspondence. Note: The Touch Panel shows the percentage of processing completed of the diagnostic sequence. If the sequence has been completed okay, it gives the message of "OK"; if a fault was encountered, it gives the message of "NG" together with the address at which the fault occurred. <Procedure> Press the Start key to start the diagnostic sequence. Note: The copier automatically stops as soon as it completes the diagnostic sequence. The Stop key may, however, be pressed to halt the sequence.
Comp./Expansion	Comp.: If a compression/expansion error (malfunction code) occurs, this function causes the CPU to write image data to the input page memory, compress it to the encoder memory, and check the image against a predetermined value. Expansion: If a compression/expansion error (malfunction code) occurs, this function causes the CPU to write image data to the input page memory, compress it to the encoder memory, and expand it to the output page memory. Then, it makes the CPU compare the expanded image data with the original one. Note: The Touch Panel shows the percentage of processing completed of the diagnostic sequence. If the sequence has been completed okay, it gives the message of "OK"; if a fault was encountered, it gives the message of "NG" together with the corresponding malfunction code (C12XX). <Procedure> 1. Select either Comp. or Expansion. 2. Press the Start key to start the diagnostic sequence. Note: The copier automatically stops as soon as it completes the diagnostic sequence. The Stop key may, however, be pressed to halt the sequence.

Touch Panel Display	Operation
I.R. ⇄ Mem. ⇄ Prn	I.R. → Memory: If a faulty image occurs, this function is run to check for correct image signal transfer and possible signal interruption between the IR and memory, thereby identifying the defective block. Note: The Touch Panel shows the percentage of processing completed of the diagnostic sequence. If the sequence has been completed okay, it gives the message of "OK"; if a fault was encountered, it gives the message of "NG" together with the corresponding malfunction code (C12XX). <Procedure> 1. Touch [IR → Memory]. 2. Press the Start key to start the diagnostic sequence. Note: The copier automatically stops as soon as it completes the diagnostic sequence. The Stop key may, however, be pressed to halt the sequence. Memory → Printer: If a faulty image occurs, this function is run to check for correct image signal transfer and possible signal interruption between the memory and printer, thereby identifying the defective block. Note: The Touch Panel shows the percentage of processing completed of the diagnostic sequence. If the sequence has been completed okay, it gives the message of "OK" or the copier feeds out paper with a correct image. If a fault was encountered, the panel gives the message of "NG" and the corresponding malfunction code (C12XX, C13XX) or the copier feeds out paper with a defective image. <Procedure> 1. Touch either [Memory → Prn1] or [Memory → Prn2]. 2. Press the Start key to start the diagnostic sequence. (The copier runs a print cycle at the same time.) 3. Compare the image on the paper fed out with that of the sample to determine whether a problem exists. Note 1: Use the Multi Bypass Table as the paper source. Note 2: Load the Multi Bypass Table with A4 lengthwise or Letter lengthwise paper. Note 3: The copier automatically stops as soon as it completes the diagnostic sequence. The Stop key may, however, be pressed to halt the sequence. (The print cycle is completed with a single paper take-up motion.)
Hard Disk Format	This function formats the Hard Disk when it is connected for the first time or if the Hard Disk develops a malfunction. Note 1: Formatting the Hard Disk erases all data contained in it. Note 2: The Touch Panel shows the percentage of processing completed. If formatting has been normally completed, the panel gives the message of "OK"; if it has been abnormally terminated, the panel gives the message of "NG" together with the corresponding malfunction code (C12XX). <Procedure> Press the Start key to start the formatting. Note: The function is automatically terminated as soon as formatting is completed.

Touch Panel Display	Operation
Hard Disk Check	Checks for proper connection and read/write operation of the Hard Disk. Note: The Touch Panel shows the percentage of sequence completed. If the check has been completed okay, it gives the message of “OK.” If a fault was encountered, the panel gives the message of “NG” together with the corresponding malfunction code (C12XX). <Procedure> Press the Start key to start the diagnostic sequence. Note: The check is automatically terminated as soon as it is completed.
ECC Check	Checks for proper connection and operation of the ECC. Note: The Touch Panel shows the percentage of sequence completed. If the check has been completed okay, it gives the message of “OK.” If a fault was encountered, the panel gives the message of “NG” together with the corresponding malfunction code (C18XX). <Procedure> Press the Start key to start the diagnostic sequence. Note: The check is automatically terminated as soon as it is completed.
Date/Time Check	Checks for the current time-of-day and date.

1155SBS050402A

2) Tech. Rep. Choice

- This function allows the Tech. Rep. to make the various settings and adjustments.

<Functions>

1) System Set: Used for setting the choice functions concerning the operating environment of the system.
2) Printer: Used for setting the choice functions concerning the printer.

<Setting Procedure>

1. Touch [Tech. Rep. Choice] to open a screen to select System or Printer.
2. Touch either [System] or [Printer] as necessary.
3. Select the particular choice function to be set.

Tech. Rep. Mode ▶ Tech. Rep. Choice

<System Set>

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>FLS Paper</td><td>Set the size for FLS.
<table>
<tr><td>F : 330.2mm
C : 203.2mm</td><td>F : 330mm
C : 210mm</td><td>F : 330.2mm
C : 215.9mm</td><td>F : 330mm
C : 220mm</td></tr>
</table></td></tr>
<tr><td>Auto Paper Config.</td><td>Select either “Inch/Metric” or “Metric” for rounding off the original size detected.
<table>
<tr><td>Inch / Metric</td><td>The measurement is rounded to the nearest standard inch or metric size.</td></tr>
<tr><td>Metric</td><td>The measurement is rounded to the nearest standard metric size.</td></tr>
</table></td></tr>
<tr><td>Printer Time Out</td><td>Set the time for communication detection between the copier and Pi6000 if a Pi6000 is connected. If “Disable” is selected, communication detection is not made.
Note: A malfunction code appears on the Touch Panel if no communications are carried out between the copier and Pi6000 within the set period of time.
<table>
<tr><td>(1 to 99)
(Disable)</td><td>(10 min.)</td></tr>
</table></td></tr>
<tr><td>Touch Panel Adj.</td><td>Correct the deviation in the sensitive area of the Touch Panel.
<Procedure>
1. Touch the four points (marked with +) on the screen in any sequence.
2. The + markers change into grid markers and, when the [End] key is touched, the deviation is corrected.
Note: Touch [Cancel] to nullify or cancel the adjustment.</td></tr>
<tr><td>Maintenance Call</td><td>Select whether or not to give the Maintenance Call when the Consumables counter reaches the preset count.
<table>
<tr><td>Call Indicated</td><td>Call Not Indicated</td></tr>
</table></td></tr>
</table>

Touch Panel Display	Setting (The default is **Highlighted** .)
Simplex / Duplex?	Select whether or not to enable the setting of 1-Sided ▶ 1-Sided under Original ▶ Copy Default available from User's Choice. Note: If "Both" is selected, 1-Sided ▶ 1-Sided becomes available as an option. Display: Both / **Duplex Only** Description: Both — Does not limit the options for Original ▶ Copy Default to 2-sided copying only. / Duplex Only — Limits the options for Original ▶ Copy Default to 2-sided copying only.
Universal Tray	Set the size in the CD direction of the inch paper used in the Universal Tray if its size in the FD direction is 14". 14 x 81/4 / **14 x 81/2**

<Printer>

Touch Panel Display	Setting (The default is **Highlighted** .)
Toner Empty Stop	Select whether or not to inhibit copying when a toner-empty condition is detected. **Enable** / Disable
T/C Abnormal	Select whether to enable or disable copying when an abnormal T/C is detected. **Enable** / Disable Note: As a rule, the setting should not be changed.
Lead Edge Erase	Set the erase width on the leading edge of the image. (0 to 5) **(4mm)** Note: The press of the Start key lets the copier output a test pattern (grid pattern). The paper source is the Universal Tray.
Trail Edge Erase	Set the erase width on the trailing edge of the image. (0 to 5) **(3mm)** Note: The press of the Start key lets the copier output a test pattern (grid pattern). The paper source is the Universal Tray.
Loop Adjustment	Set the length of loop to be formed between the Synchronizing Rollers. –3: Loop length approx. –3mm –2: Loop length approx. –1mm –1: Loop length approx. 1mm **0**: Loop length approx. 3mm 1: Loop length approx. 5mm 2: Loop length approx. 7mm 3: Loop length approx. 9mm
γ Table	Specify the gamma (γ) table (gradation characteristics) in the Photo mode. (0 to 9) **(4)**

Touch Panel Display	Setting (The default is **Highlighted** .)
Straight Line	Use this function to make the image look soft or hard. 0 (Not used) ← 1 (Making the image look hard) — **4** — → 7 (Making the image look soft) Note: The setting “0” results in no straight line screening performed.
VG Adjust	Set VG when a fog or void occurs in the image. –2 (Lighter) ← **0** → +3 (Darker)
T/C Auto Recover	Select whether to enable or disable auto recovery of T/C when it drops. **Enable** | Disable Note: As a rule, the setting should not be changed.

3) System Input

- This function allows the Tech. Rep. to change the fixed zoom ratios, set the paper size, define the marketing area, configure for the Key Counter, and input the telephone number.

<Setting Procedure>

1. Touch [System Input] to open the System Input menu screen.
2. Touch the desired subfunction key.

Tech. Rep. Mode ▶ System Input

<table>
<tr><th>Touch Panel Display</th><th>Setting (The default is Highlighted .)</th></tr>
<tr><td>Change Fixed Zoom</td><td>Change a fixed zoom ratio to a desired value in the range between X0.250 and X4.000.
<Procedure>
1. Touch the key of the fixed zoom ratio to be changed.
2. Press the Clear key to clear the setting and enter the new ratio from the 10-Key Pad.
3. Touch [Enter] to validate the new setting.</td></tr>
<tr><td>Paper Size Input</td><td>Set the size of the paper used in each paper source.
<Procedure>
1. Touch the key of the paper source for which the paper size setting is to be changed to show the Paper Size Input 2 screen.
2. Touch the desired paper size key.
Note: If the 10-Key Pad has been selected, enter the FD and CD size of the paper from the 10-Key Pad.
3. Touch [End] to validate the paper size setting.</td></tr>
<tr><td>Marketing Area</td><td>Select the marketing area to set the paper size and fixed zoom ratios.
<Procedure>
1. Touch the desired marketing area key.
2. Touch [End] to validate the marketing area setting.
<table><tr><td>MJ</td><td>MC</td><td>MH</td><td>Others</td></tr></table></td></tr>
<tr><td>Tel. # Input</td><td>Input the telephone number that will appear on the Touch Panel when a malfunction occurs in the copier.
<Procedure>
1. Enter the phone number (consisting of up to 19 digits) from the 10-key Pad.
Note: Use the Interrupt key to enter a hyphen “-”.
2. Touch “OK” to validate the phone number setting.</td></tr>
<tr><td>CH Wire Cleaning</td><td>Select whether or not to run an automatic cleaning sequence of each corona wire when the Power Switch is turned ON.
<table><tr><td>ON</td><td>OFF</td></tr></table></td></tr>
</table>

4) Counter

- This function maintains the counts of the various counters, thus aiding the Tech. Rep. in performing service jobs.

<Setting Procedure>
1. Touch [Counter] to open the Counter menu screen.
2. Touch the desired subfunction key to open the corresponding counter setting screen.
3. To clear a count, touch [Counter Reset], the key of the counter to be cleared, and [End].

Note: Two or more counters can be selected.

Tech. Rep. Mode ▶ Counter

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Paper</td><td>Shows the number of sheets of paper used by the size and type.
<table>
<tr><th>Display</th><th>Description</th><th>Display</th><th>Description</th><th>Display</th><th>Description</th></tr>
<tr><td>A3
B4
A4
B5
A5
B6
A6</td><td>A3 (L)
B4 (L)
A4 (L,C)
B5 (L,C)
A5 (L,C)
B6 (L)
A6 (L)</td><td>11×17
11×14
Letter
Legal
5½×8½
FLS
Not 2-Sided</td><td>11×17 (L)
11×14
Letter (L,C)
Legal (L,C)
5½×8½ (L,C)
FLS
Not 2-Sided</td><td rowspan="2">Normal
Recycled
Cover
Insert
Cover &
Insert</td><td rowspan="2">Normal
Recycled
Cover
Insert
Cover &
Insert</td></tr>
</table>
<Clearing a Count>
Select the count to be cleared by touching the corresponding item key shown on the Touch Panel (A3, B4, ...) and press the Clear key.
If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.</td></tr>
<tr><td>MJ</td><td>1) This function allows the Tech. Rep. to set the number of copies to be made before the Maintenance Call reminder is given the next time.
2) It shows the current count value and the above setting. Each counter may be reset to 0 independently of each other.
3) When the count reaches the preset value, the Maintenance Call reminder (M1) is given.
Note: When “Call Indicated” is selected for “Maintenance Call” available from Tech. Rep. Choice.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>Maint.-Set</td><td>The Maintenance Call reminder is given when the count reaches the preset value.</td></tr>
<tr><td>Maint.-Count</td><td>Counts one for each copy made.</td></tr>
</table>
<Setting a Count>
1. Touch [Maint.-Set] and then press the Clear key to clear the count. If the count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
2. Enter the desired value from the 10-Key Pad.

<Clearing a Count>
Touch [Maint.-Count] and then press the Clear key to clear the count. If the count is accidentally cleared, pressing the Interrupt key will undo the clear operation.</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Jam</td><td>Shows the number of misfeeds that have occurred in different parts of the system including MCBJ and MDBJ. Each counter may be reset to 0 independently of each other.

<Jam Counter 1/4>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>MCBJ System</td><td>MCBJ total counter/misfeed counter (including misfeeds at Finisher)</td></tr>
<tr><td>MCBJ Machine Only</td><td>MCBJ total counter/misfeed counter (excluding misfeeds at Finisher)</td></tr>
<tr><td>Manual Feed</td><td>No. of misfeeds that occurred at the Multi Bypass Table</td></tr>
<tr><td>1st Drawer</td><td>No. of misfeeds that occurred at the 1st Drawer of the copier</td></tr>
<tr><td>2nd Drawer</td><td>No. of misfeeds that occurred at the 2nd Drawer of the copier</td></tr>
<tr><td>3rd Drawer</td><td>No. of misfeeds that occurred at the 3rd Drawer of the copier</td></tr>
<tr><td>4th Drawer</td><td>No. of misfeeds that occurred at the 4th Drawer of the copier</td></tr>
</table>

<Jam Counter 2/4>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>LCC</td><td>No. of misfeeds that occurred at the paper take-up section of the LCT</td></tr>
<tr><td>Vertical Trans.</td><td>No. of misfeeds that occurred at the paper take-up/transport section of the copier</td></tr>
<tr><td>Horizontal Trans</td><td>No. of misfeeds that occurred at the paper transport section of the copier</td></tr>
<tr><td>Separator</td><td>No. of misfeeds that occurred at the paper separator section of the copier</td></tr>
<tr><td>Fusing</td><td>No. of misfeeds that occurred at the Fusing Unit of the copier</td></tr>
<tr><td>Dup Entrance</td><td>No. of misfeeds that occurred at the turnover/storage section of the Duplex Unit</td></tr>
<tr><td>Dup Exit</td><td>No. of misfeeds that occurred at the horizontal transport section of the Duplex Unit</td></tr>
</table>

<Jam Counter 3/4>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>MDBJ (EDH)</td><td>EDH paper feed counter/EDH misfeed counter</td></tr>
<tr><td>EDH Feed</td><td>No. of misfeeds that occurred at the document take-up section of the EDH</td></tr>
<tr><td>EDH Transport</td><td>No. of misfeeds that occurred at the document transport section of the EDH</td></tr>
<tr><td>EDH Reverse</td><td>No. of misfeeds that occurred at the document turnover section of the EDH</td></tr>
<tr><td>EDH Exit</td><td>No. of misfeeds that occurred at the exit section (straight) of the EDH</td></tr>
<tr><td>EDH Exit-Reverse</td><td>No. of misfeeds that occurred at the exit section (turnover) of the EDH</td></tr>
<tr><td>SADF Feed</td><td>No. of misfeeds that occurred at the SADF</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>Jam</td><td>
<Jam Counter 4/4>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>Fold</td><td>No. of misfeeds that occurred at the Folding Unit of the Finisher</td></tr>
<tr><td>Staple</td><td>No. of misfeeds that occurred at the Stapling Unit of the Finisher</td></tr>
<tr><td>Finisher</td><td>No. of misfeeds that occurred in the Finisher, other than above</td></tr>
<tr><td>Needle</td><td>No. of staple misfeeds that occurred</td></tr>
</table>
<Clearing a Count>
Touch the item key (Fold, Staple, ...) whose count is to be cleared and then press the Clear key. If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
</td></tr>
<tr><td>PM</td><td>
Shows the frequency of use of each of the PM parts. Each count may be selectively reset to 0.
<PM Counter 1/4>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>Manual Feed</td><td>No. of sheets of paper fed from the Multi Bypass Table</td></tr>
<tr><td>1st Drawer</td><td>No. of sheets of paper fed from the 1st Drawer</td></tr>
<tr><td>1st Drawer Parts</td><td>No. of sheets of paper fed from the 1st Drawer</td></tr>
<tr><td>2nd Drawer</td><td>No. of sheets of paper fed from the 2nd Drawer</td></tr>
<tr><td>2nd Drawer Parts</td><td>No. of sheets of paper fed from the 2nd Drawer</td></tr>
<tr><td>3rd Drawer</td><td>No. of sheets of paper fed from the 3rd Drawer</td></tr>
<tr><td>3rd Drawer Parts</td><td>No. of sheets of paper fed from the 3rd Drawer</td></tr>
</table>
<PM Counter 2/4>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>4th Drawer</td><td>No. of sheets of paper fed from the 4th Drawer</td></tr>
<tr><td>4ht Drawer Parts</td><td>No. of sheets of paper fed from the 4th Drawer</td></tr>
<tr><td>LCC</td><td>No. of sheets of paper fed from the LCC</td></tr>
<tr><td>LCC Parts</td><td>No. of sheets of paper fed from the LCC</td></tr>
<tr><td>PC Drum 1*</td><td>Time over which the PC Drum has turned (H), the number of sheets of paper as converted from the time (K)</td></tr>
<tr><td>PC Drum 2*</td><td>Time over which the PC Drum has turned (H), the number of sheets of paper as converted from the time (K)</td></tr>
<tr><td>PC Drum 3*</td><td>Time over which the PC Drum has turned (H), the number of sheets of paper as converted from the time (K)</td></tr>
</table>
*: The Maintenance Call reminder (M5) is given when the count reaches 142H/380K.
</td></tr>
</table>

<table>
<tr><th>Touch Panel Display</th><th>Operation</th></tr>
<tr><td>PM</td><td>
<PM Counter 3/4>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>Developer 1</td><td>Time over which the PC Drum has turned (H), the number of sheets of paper as converted from the time (K)</td></tr>
<tr><td>Developer 2</td><td>Time over which the PC Drum has turned (H), the number of sheets of paper as converted from the time (K)</td></tr>
<tr><td>Other PM Parts 1</td><td>No. of print cycles run</td></tr>
<tr><td>Other PM Parts 2</td><td>No. of print cycles run</td></tr>
<tr><td>Cleaning 1</td><td>No. of times a sheet of paper is fed out</td></tr>
<tr><td>Cleaning 2</td><td>No. of times a sheet of paper is fed out</td></tr>
<tr><td>Cleaning 3</td><td>No. of times a sheet of paper is fed out</td></tr>
</table>
<PM Counter 4/4>
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>Fusing Unit</td><td>No. of times a sheet of paper is fed out</td></tr>
<tr><td>Fusing Roller</td><td>No. of times a sheet of paper is fed out</td></tr>
<tr><td>IR</td><td>No. of scan motions</td></tr>
<tr><td>EDH Simplex</td><td>No. of times a 1-sided original is fed through</td></tr>
<tr><td>EDH Duplex</td><td>No. of times a 2-sided original is fed through</td></tr>
<tr><td>EDH Single Feed</td><td>No. of single feeds</td></tr>
<tr><td>Fold</td><td>No. of times the Finisher makes a fold</td></tr>
</table>
<Clearing a Count>
Touch the item key (Manual Feed, 1st Drawer, ...) whose count is to be cleared and then press the Clear key. If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
</td></tr>
<tr><td>Consumables</td><td>
1) This function allows the Tech. Rep. to set the number of copies to be made before the next replacement time.
2) It shows the current count value and the above setting. Each counter may be reset to 0 independently of each other.
3) When the count reaches the preset value, the Maintenance Call reminder (Web: M2; Waste Toner: M3) is given.
Note 1: When “Call Indicated” is selected for “Maintenance Call” available from Tech. Rep. Choice.
Note 2: The copier inhibits the initiation of a new copy cycle when 20k more copies have been made after the Maintenance Call reminder.
<Setting a Count>
1. Touch [Set] and then press the Clear key to clear the count. If the count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
2. Enter the desired value from the 10-Key Pad.
<Clearing a Count>
Touch [Count] and then press the Clear key to clear the count. If the count is accidentally cleared, pressing the Interrupt key will undo the clear operation.
</td></tr>
</table>

Touch Panel Display	Operation
Trouble	Shows the number of malfunctions that have occurred in different parts of the system. Each counter may be reset to 0 independently of each other.

<Trouble Counter 1/9>

Malfunction Code	Location	Malfunction Code	Location
C0001	Main Drive Motor	C0042	Toner Ventilation Fan
C0010	PC Drum Drive Motor	C004C	Ozone Ventilation Fan
C0020	Vert. Trans. Drive Motor	C004E/F/D	Cooling Fan
C0040	Suction Fan	C0070/2	Toner Hopper Motor

<Trouble Counter 2/9>

Malfunction Code	Location	Malfunction Code	Location
C0090	Dev. Unit Drive Motor	C0210	Transfer Corona
C0100	PC Charge Cleaner	C0220	Developing Bias
C0110	Trans./ Separator Ch. Cleaner	C0230	Separator Corona
C0200	PC Charge Corona	C04X0	Exposure Lamp

<Trouble Counter 3/9>

Malfunction Code	Location	Malfunction Code	Location
C05X0	Fusing Unit	C092X	1st Drawer
C0600	Scanner Encoder pulse Error	C095X	4th Drawer
C090X	3rd Drawer	C099X	LCC
C091X	2th Drawer	C09CX	PFC

<Trouble Counter 4/9>

Malfunction Code	Location	Malfunction Code	Location
C0B0X	Finisher Transport	C0B5X	Staple Unit (Rotation)
C0B2X	Staple Unit (CD direction)	C0B7X	Punch
C0B3X	Finisher Alignment	C0BAX	Finisher Elevate Tray
C0B4X	Finisher Staple Transport	C0BCX	Finisher Fold Unit

<Trouble Counter 5/9>

Malfunction Code	Location	Malfunction Code	Location
C0E00	Main Erase	C12XX	Memory Board
C0F24	AIDC Sensor	C124C/8C/8D	SPC
C0F3X	ATDC Sensor	C129X	Dualport Memory
C1200/1/3	System/Image Memory	C12A0/4	Peripheral Signal (Input)

Touch Panel Display	Operation
Trouble	<Trouble Counter 6/9>

Malfunction Code	Location	Malfunction Code	Location
C12A/8C	Peripheral Signal (Output)	C1330	VD Trouble
C12CX	HDD Trouble	C0602	Scanner Drive
C1300	Polygon Motor	C0650	Scanner Home
C13FX	SOS Sensor	C1430	H. sync Trouble

<Trouble Counter 7/9>

Malfunction Code	Location	Malfunction Code	Location
C0F20	2hours correction Trouble	C1461/2	Serial GA Trouble
C143E	EDH Trouble	C1468	EEPROM Trouble
C1440	Gain Adjust Trouble	C1499	IR Cooling Fan
C1441	CCD Trouble	C14AX	Lamp Heater

<Trouble Counter 8/9>

Malfunction Code	Location	Malfunction Code	Location
C14EX	Sequence Timeout	C10A1/2, C11EX	Communication (IR)
C14F2	IR Filter	C10A5/6, C11FX, C1326/34	Com. (Prn.)
C1802	SPC Error		
C1803	Memory Check Trouble		
C180X	EEC Control Trouble		
C181X/FX	Controler Trouble		

<Trouble Counter 9/9>

Malfunction Code	Location
C133B	Communication (Option)
C14XX	IR Sequence Trouble
C10XX, C11XX	Others
C0048	HDD Fan
C0049	PC Fan
C004A	Scanner Fan
C004B	Scanner CCD Fan

<Clearing a Count>
Touch the item key (C0E00, C0F24, ...) whose count is to be cleared and then press the Clear key. If a count is accidentally cleared, pressing the Interrupt key will undo the clear operation.

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5) I/O Check

- This function is used to check the sensors and boards when a paper misfeed or malfunction occurs, thereby locating the fault.

Tech. Rep. Mode ▶ I/O Check

Touch Panel Display	Operation
I/O Check	***Note*** For details, see TROUBLESHOOTING.

1155SBS050406A

6) I.R. & EDH Check

- This function allows the Tech. Rep. to make the various functional tests and adjustments, choice settings, and sensor checks as they relate to the IR and EDH.

Tech. Rep. Mode ▶ I.R. & EDH Check

Touch Panel Display	Setting
I.R. & EDH Check	Makes the various functional tests and adjustments, choice settings, and sensor checks as they relate to the IR and EDH.
Function (IR)	Performs the following functions.
Address Adjust	Adjusts the address at which to monitor the intensity of light. <Procedure> 1. Press the Start key to start the measurement cycle. 2. If the measurement result is okay, touch [Save] (which highlights the key) to save the measurement. Note 1: The copier automatically stops as soon as it completes the measurement cycle. The Stop key may, however, be pressed to halt the sequence. Note 2: Be sure to run this function when the CCD Unit or a Scanner part (including the Exposure Lamp) has been replaced with a new one.
Exp. Lamp Check	Checks to see whether the Exposure Lamp turns ON properly and for the maximum and minimum values of the intensity of lamp light. Note: The Touch Panel shows “OK” if the intensity data and light distribution ratio fall within the specified range, and “NG” if they fall outside the range. It gives the message of “Unable” if the check sequence is abnormally terminated. <Procedure> Press the Start key to start the measurement cycle. Note: The copier automatically stops as soon as it completes the measurement cycle. The Stop key may, however, be pressed to halt the sequence.
Focus Check	Automatically checks the focus level of the IR and shows the results of the check. Note: This function is only for factory setting and should never be used in the field.
Zoom (CD)	Adjusts the zoom ratio in the CD (main scanning) direction and shows the results. Note: This function is only for factory setting and should never be used in the field.
Zoom (FD)/Scale	Automatically adjusts the zoom ratio in the FD (sub-scanning) direction and the Original Length Scale position and shows the results. Note: This function is only for factory setting and should never be used in the field.
Scale (CD)	Automatically adjusts the Original Width Scale position in the CD (main scanning) direction and shows the results. Note: This function is only for factory setting and should never be used in the field.

Touch Panel Display	Setting
I.R. & EDH Check	———
Function (IR)	———
Scanning Check	1) Checks the scanning system. 2) This function is used to isolate the cause or causes of a faulty image that has occurred. Note: The Touch Panel shows “OK” if the check is normally completed and “NG” as well as a code if a faulty spot is found. <Procedure> Press the Start key to start the measurement cycle. Note 1: The copier automatically stops as soon as it completes the check sequence. The Stop key may, however, be pressed to halt the sequence. Note 2: The evaluation of “OK” or “NG” represents a mere probability, not to be construed as a decisive conclusion.
Orig. Size Adjust	Makes an adjustment of the detection level required for original size detection and shows the results. Note 1: A chart (blank sheet of A4 or Letter crosswise paper) is necessary for the adjustment. Note 2: The Touch Panel shows “OK” if the adjustment value falls within the specified range, and “NG” if it falls outside the range. It gives the message of “Unable” if a faulty detection size is noted. <Procedure> 1. Place the chart on the Original Glass. 2. Press the Start key to start the measurement cycle. 3. If the measurement result is okay, touch [Save] (which highlights the key) to save the measurement. Note: The copier automatically stops as soon as it completes the measurement cycle. The Stop key may, however, be pressed to halt the sequence.
Orig. Size Check	Checks for correct original size detection and shows the results. Note 1: A chart (blank sheet of A4 or Letter crosswise paper) is necessary for the adjustment. Note 2: The Touch Panel shows “OK” if the size detection is correct, and “NG” if it is incorrect. <Procedure> 1. Place the chart on the Original Glass. 2. Press the Start key to start the measurement cycle. Note: The copier automatically stops as soon as it completes the measurement cycle. The Stop key may, however, be pressed to halt the sequence.

Touch Panel Display	Setting
I.R. & EDH Check	———
Function (EDH)	Performs the following functions.
Pos./Zoom (FD)	Automatically adjusts the zoom ratio and the scanning position in the FD (sub-scanning) direction when the EDH is used and shows the results. Note 1: Run this function after making sure that the result of the Skew Check is within 1.0%. Note 2: The Touch Panel shows “OK” if the adjustment value falls within the specified range, and “NG” if it falls outside the range. It gives the message of “Unable” if the adjustment sequence is abnormally terminated. <Procedure> 1. Load the chart in the EDH. 2. Press the Start key to start the measurement cycle. 3. If the measurement result is okay, touch [Save] (which highlights the key) to save the measurement. Note: The copier automatically stops as soon as it completes the measurement cycle. The Stop key may, however, be pressed to halt the sequence.
Position (CD)	Automatically adjusts the scanning position in the CD (main scanning) direction when the EDH is used and shows the results. Note 1: Run this function after making sure that the result of the Skew Check is within 1.0%. Note 2: The Touch Panel shows “OK” if the adjustment value falls within the specified range, and “NG” if it falls outside the range. It gives the message of “Unable” if the adjustment sequence is abnormally terminated. <Procedure> 1. Load the chart in the EDH. 2. Press the Start key to start the measurement cycle. 3. If the measurement result is okay, touch [Save] (which highlights the key) to save the measurement. Note: The copier automatically stops as soon as it completes the measurement cycle. The Stop key may, however, be pressed to halt the sequence.
S-ADF Mode (CD)	Adjusts the scanning position (CD) for a single feed scan. Note: The Touch Panel shows “OK” if the adjustment value falls within the specified range, and “NG” if it falls outside the range. It gives the message of “Unable” if the adjustment sequence is abnormally terminated. <Procedure> 1. Insert the chart into the Single Feed Tray, which starts the measurement cycle. (There is no need of pressing the Start key.) 2. If the measurement result is okay, touch [Save] (which highlights the key) to save the measurement. Note: The copier automatically stops as soon as it completes the measurement cycle. The Stop key may, however, be pressed to halt the sequence.

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>I.R. & EDH Check</td><td>———————</td></tr>
<tr><td>Function (EDH)</td><td>———————</td></tr>
<tr><td>S-ADF Mode (FD)</td><td>Adjusts the scanning position (FD) for a single feed scan.
Note: The Touch Panel shows “OK” if the adjustment value falls within the specified range, and “NG” if it falls outside the range. It gives the message of “Unable” if the adjustment sequence is abnormally terminated.
<Procedure>
1. Insert the chart into the Single Feed Tray, which starts the measurement cycle. (There is no need of pressing the Start key.)
2. If the measurement result is okay, touch [Save] (which highlights the key) to save the measurement.
Note: The copier automatically stops as soon as it completes the measurement cycle. The Stop key may, however, be pressed to halt the sequence.</td></tr>
<tr><td>Skew Check</td><td>Checks the EDH for correct alignment and shows the results.
Note 1: The Touch Panel shows “OK” if the copier is able to take measurements successfully and “Unable” if it fails.
Note 2: The message “OK” merely indicates that the copier has been able to take measurements, providing no criteria for determining if the specifications are met or not.
<Procedure>
1. Load the chart in the EDH.
2. Press the Start key to start the measurement cycle.
Note: The copier automatically stops as soon as it completes the measurement cycle. The Stop key may, however, be pressed to halt the sequence.</td></tr>
<tr><td>Tech. Rep. Choice</td><td>Allows the Tech. Rep. to set, check, adjust, and program the various Tech. Rep. functions.</td></tr>
<tr><td>Erasure Width</td><td>Set the fixed erasure width from the Original Width Scale and Original Length Scale to erase shadows which are otherwise produced by the scales.
(0 to 5) (3mm)</td></tr>
<tr><td>ID in Photo Mode</td><td>Set the image quality for the special mode.
<table><tr><td>0</td><td>1 to 9</td></tr><tr><td>Normal mode</td><td>Special mode</td></tr></table>Note 1: Only when any number from 1 to 9 is set, the special image quality mode key “*” appears on the Density screen.
Note 2: The special mode is for expansion of functions.</td></tr>
<tr><td>Skew Detection</td><td>Set the angle of skew to serve as the reference for giving a skew original warning.
Note: The skew original warning is given if the set angle is exceeded with “Realign Warning” of User's Choice turned ON.
<table><tr><td>Strick</td><td>Standard</td><td>Loose</td></tr><tr><td>4mm / 210mm</td><td>8mm / 210mm</td><td>16mm / 210mm</td></tr></table></td></tr>
</table>

Tech. Rep. Mode ▶ I.R. & EDH Check

Touch Panel Display	Setting
I.R. & EDH Check	———
EDH I/O Check	Checks each sensor used in the EDH and shows its status with either 0 or 1. <Procedure> 1. With the EDH I/O check screen on the Touch Panel, directly activate or deactivate each sensor. 2. The copier shows either 1 or 0 on a realtime basis.
EDH Paper Passage	Makes a paper passage check through the EDH in its different operating modes. <Procedure> 1. Touch the desired sub-function key. 2. Press the Start key to start the check sequence. Note: The copier automatically stops as soon as it completes the check sequence. The Stop key may, however, be pressed to halt the sequence.

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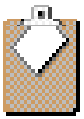
7) ROM Version

Tech. Rep. Mode ▶ ROM Version



Touch Panel Display	Setting
ROM Version	Displays the version of the current ROM. Note: No versions are displayed if the system is not mounted with a ROM. <Procedure> 1. Touch [ROM version] to open the ROM Version screen. 2. The screen shows the ROM version.

Display		Description
MSC	IC71B	PWB-B
Massage	IC21B	PWB-B
ECC	IC2/3W	PWB-W
IR	IC26IB	PWB-IB
Printer	IC2A	PWB-A
Finisher	IC2	FN-3 PWB-A
Data Controller	IC2	D-102 PWB

8) RD Mode

Tech. Rep. Mode ▶ RD Mode

Touch Panel Display	Setting
RD Mode	For making the initial settings of the copier for the Data Terminal.
ID Code	Enter a 7-digit ID code from the 10-Key Pad to enable making the following settings. When the ID code is entered and transmitted after the initial settings have been made, it executes the transmission of MAINT. START to the Center.
Maintenance	Used to make the initial settings and various transmissions.
DT Setting	Enter the following data.
CT-ID	Enter the 4-digit ID number of the Center which has been programmed in the Center personal computer.
DT-ID	Enter the 6-digit ID number of the Data Terminal.
TEL No.	Enter the 19-or-less-digit phone number of the modem connected to the Center personal computer. Note 1: When the office extension and outside line use different systems, enter “P” for a “pulse” telephone line or “T” for a “tone” telephone line before the outside line number. Note 2: The time it takes the private branch exchange (PBX) system to switch from the extension line to the outside line varies depending on the type of PBX system used. Set this time as follows. Fixed switching time: Enter the pause code “-” (a single “-” lasts 2 sec.) Varying switching time: Enter the wait code “W”.
Initial Transmission	Used to perform the initial transmission from the PPC to the Center to check for correct communication when the Data Terminal has been set up.
Data Save/Load	Enables transmission of Data Save and Data Load.
Data Save	Transmits the command that saves the PPC RAM data sent by Data Save back to the PPC.
Data Load	Used to perform the initial transmission from the PPC to the Center to check for correct communication when the Data Terminal has been set up.
Call Completion	Used by the Tech. Rep. to notify the Center that his/her service job for the copier has been completed.
Counter Clear	Used to clear the count of the spare counter set by the Center. <Procedure> 1. Touch [Counter Clear] to open the Counter Clear screen. 2. Touch the number assigned to the counter to be cleared.

Touch Panel Display	Setting (The default is **Highlighted** .)
RD Mode	———
Copy Track	Used to make the initial settings and various transmissions.
DT Setting	Enter the following data.
CT-ID	Enter the 4-digit ID number of the Center which has been programmed in the Center personal computer.
DT-ID	Enter the 6-digit ID number of the Data Terminal.
TEL No.	Enter the 19-or-less-digit phone number of the modem connected to the Center personal computer. Note 1: When the office extension and outside line use different systems, enter “P” for a “pulse” telephone line or “T” for a “tone” telephone line before the outside line number. Note 2: The time it takes the private branch exchange (PBX) system to switch from the extension line to the outside line varies depending on the type of PBX system used. Set this time as follows. Fixed switching time: Enter the pause code “-” (a single “-” lasts 2 sec.) Varying switching time: Enter the wait code “W”.
Initial Transmission	Used to perform the initial transmission from the PPC to the Center to check for correct communication when the Data Terminal has been set up.
RAM Clear	Reinitializes the Data Terminal. YES / **NO**
Common DT	Set the following functions.
Dial Mode	Select the type of telephone line of the user. Tone / Pulse
Auto Receive	Choose “Yes” or “No” for the auto reception function. YES / **NO** Note: Select “Yes” if the line is dedicated to the Data Terminal.
Result Code	Enter the result code for connection to the modem when the line is connected. (0 to 9999)
Report Format	Japan only. 10 Bit / 11 Bit

9) Level History

- This function is used to show the various level histories which are changed according to the operating conditions of the copier and user requirements.

Tech. Rep. Mode ▶ Level History

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Level History</td><td>
<Fuser (Upper)>
Displays the approximate current temperature of the Upper Fusing Roller.
<table>
<tr><th>Variable Range</th><th>Increments</th></tr>
<tr><td>120 to 250 (°C)</td><td>5°C</td></tr>
</table>
<Fuser (Lower)>
Displays the approximate current temperature of the Lower Fusing Roller.
<table>
<tr><th>Variable Range</th><th>Increments</th></tr>
<tr><td>90 to 200 (°C)</td><td>5°C</td></tr>
</table>
<ATDC Set>
Displays the control voltage set with ATDC Sensor Adjustment (F8).
Note: The Level History data is updated when the ATDC Sensor Adjustment is completed. After a value has been entered from the 10-Key Pad for the ATDC “Set” of Adjust, that value is updated for “ATDC Set” of Level History.
<table>
<tr><th>Variable Range</th><th>Increments</th></tr>
<tr><td>0 to 9.4 (V)</td><td>0.1V</td></tr>
</table>
<ATDC Current>
Displays the approximate current ATDC Sensor output voltage and the T/C value (%).
Note: Here is the correspondence between the output voltage and T/C.
3.57V=1% 3.21V=2% 2.86V=3% 2.68V=3.5%
2.50V=4% 2.32V=4.5% 2.15V=5%
<table>
<tr><th>Variable Range</th><th>Increments</th></tr>
<tr><td>0 to 4.7 (V)</td><td>0.1V</td></tr>
</table>
<AIDC Fine Set>
Displays the AIDC Sensor LED control voltage adjusted with the AIDC Sensor contamination correction (fine adjustment).
Note 1: The LED control voltage is adjusted in the range between 3.14V and 4.7V. If it is impossible to adjust the value so that it will fall within this range, first make an AIDC Sensor variation adjustment (coarse adjustment), then make this adjustment.
Note 2: The greater the LED control voltage, the greater the intensity of the LED light and the greater the Sensor output.
<table>
<tr><th>Variable Range</th><th>Increments</th></tr>
<tr><td>0 to 4.7 (V)</td><td>0.1V</td></tr>
</table>
</td></tr>
</table>

Tech. Rep. Mode ▶ Level History

<table>
<tr><th>Touch Panel Display</th><th>Setting</th></tr>
<tr><td>Level History</td><td>
<AIDC Coarse Set>
Displays the load resistance level of the phototransistor used in the AIDC Sensor as set with the AIDC Sensor variation adjustment.
Note: The load resistance of the phototransistor can range from 0 to 15; however, actual use ranges from 0 to 12.
<table>
<tr><th>Variable Range</th><th>Increments</th></tr>
<tr><td>0 to 15 (Steps)</td><td>1 Step</td></tr>
</table>
<AIDC Current>
Displays the approximate current AIDC Sensor output voltage.
<table>
<tr><th>Variable Range</th><th>Increments</th></tr>
<tr><td>0 to 4.7 (V)</td><td>0.1V</td></tr>
</table>
<Vg Current>
Displays the grid voltage as corrected through image stabilization and related functions.
<table>
<tr><th>Variable Range</th><th>Increments</th></tr>
<tr><td>-905 to +365 (V)</td><td>36V</td></tr>
</table>
<Vb Current>
Displays the developing bias voltage as corrected through image stabilization and related functions.
<table>
<tr><th>Variable Range</th><th>Increments</th></tr>
<tr><td>-750 to +225 (V)</td><td>35V</td></tr>
</table>
</td></tr>
</table>

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10) Admin. Mode

- This Function is used to enter or change the administrator number, in addition to the functions set in the “Administrator Mode” available from User’s Choice.

Tech. Rep. Mode ▶ Admin. Mode

Touch Panel Display	Setting
Copy Track Copy Track Date Max. Copy Sets User Help	See “Administrator Mode” of User’s Choice.
Administrator # Input	From the 10-key Pad, enter a 4-digit number (0000 to 9999) that serves as an ID number for opening the “Administrator Mode” of User’s Choice.

11) Finisher

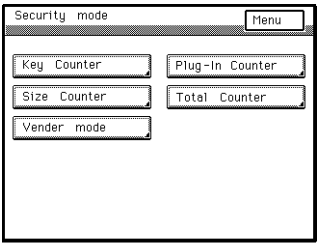
Tech. Rep. Mode ▶ Finisher

Touch Panel Display	Setting (The default is Highlighted .)
Finisher	This function allows the Tech. Rep. to make the various choice settings and sensor checks as they relate to the Finisher.
I/O Check	Checks the sensors of the Finisher and indicates the state of each sensor with either 0 or 1. <Procedure> 1. With the I/O Check screen on the Touch Panel, directly activate or deactivate each sensor. 2. The copier shows either 1 or 0 on a realtime basis.
Sensors	Displays the details of the input to each sensor of the Finisher.
Port Signal	Displays the input states of all input ports of the Finisher except the paper passage sensor.
Tech. Rep. Choice	Allows the Tech. Rep. to set, check, adjust, and program the various Tech. Rep. functions for the Finisher.
Fold-Stopper	Adjust the stop position of the 1st Crease Stopper. (–5 to +5) (0) Note: In the Inch Areas, this function cannot be used because the 1st Crease Stopper has a different mechanism.
Staple (Edge)	Set the leading edge stapling position in the FD direction. (–7 to +7) (0)
Staple (Center)	Set the center stapling position in the FD direction. (–5 to +5) (0)
Z-Fold Paper	Set the number of unfolded and Z-folded sheets of paper to be stored in the Z-Folding Processing Tray. <No. of unfolded sheets of paper> (0 to 50) (0 sheets) <No. of Z-folded sheets of paper> (0 to 10) (0 sheets)
Fin. Warning Off	Select whether to turn Enable or Disable the warnings as they relate to the Finisher (remove copies warning for the Non-Sort Tray and Elevator Tray). Enable / Disable

6. SECURITY MODE

- This Function allows the Tech. Rep. to make various settings.

6-1. Security Mode Menu Screen



1155S010CA

1155SBS0602A

6-2. Security Mode Function Setting Procedure

<Setting Procedure>
1. Set the copier into the Tech. Rep. mode by one of the following methods :
   1) With the copier turned ON, press the Tech. Rep. Setting Switch.
   2) With the Meter Count screen opened from Utility, press the following keys in this order :

Stop Key → 0 → 0 → Stop Key → 0 → 1

2. Enter the Security mode by pressing the following keys in this order :

Stop Key → 9

3. Select the particular Security mode to be set.
4. Make the necessary settings by following the instructions given sequentially on the screen.
Note: The Function selected is highlighted.

<Exiting the Mode>
Perform any one of the following steps to go back to the Basic screen.
   1) Press the Panel Reset key and Touch [Exit] on the Tech. Rep. Mode screen.
   2) Touch [Menu] on the Security Mode screen. Then touch [Exit] on the Tech. Rep. Mode screen.

Touch Panel Display

Setting (The default is **Highlighted**.)

Key Counter

Set whether a Key Counter is plugged in ("ON") or not ("OFF").

ON	**OFF**

Plug-In Counter

Select the condition by which the Key Counter count is increased.

Copies Made	Copy Cycles

Note: See the Count-up Table for details.

Size Counter

Select the size of the paper to be counted by the Size Counter.

No Count	**11×17**	A3 / B4 11×17 Legal	A3 /11×17 B4 /11×14 FLS / Legal	A6

Note: See the Count-up Table for details.

Total Counter

Select the conditions by which the Total Counter count is increased.

Mode 1	1 count per 1 copy cycle (normal mode)
Mode 2	Multiple count-up according to paper size and 1/2-sided copying
Mode 3	Multiple count-up according to paper size and 1/2-sided copying

Note: See the Count-up Table for details.

<Count-up Table>

Copying		1-Sided						2-Sided						Manual Bypass		
Size		Sizes other than those set			Set sizes			Sizes other than those set			Set sizes					
Total		Mode			Mode			Mode			Mode			Mode		
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Total (mechanical, electronic)		1			1	2	2	2			2	4	4	1		
Size (electronic)		0			1	1	2	0			2	2	0	0		
2-Sided Total (electronic)		0			0			1	2	2	1	1	4	0		
2-Sided Size (electronic)		0			0			0			1	1	4	0		
Key (mechanical)	Counting copies	1			1	2	2	1	2	2	1	4	4	1		
	Counting copy cycles	1			1	2	2	2			2	4	4	1		

0: No count 1: 1 count 2: 2 counts 3: 3 counts 4: 4 counts

Vender Mode

Set the initial screen according to the type of vendor mounted on the copier.

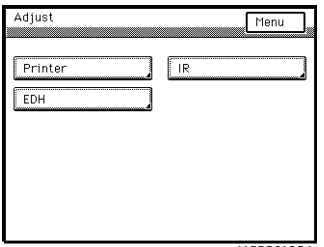
OFF	Coin	Card

1151SBS0700A

7. ADJUST

- The Adjust mode is for adjustments to be made before shipment at the factory. As a rule, use this mode only when RAM Board or Memory Board (IC28B) has been replaced with a new one. If the setting has been changed, input the value given on the Adjust Mode Label on the inside of the Front Door.

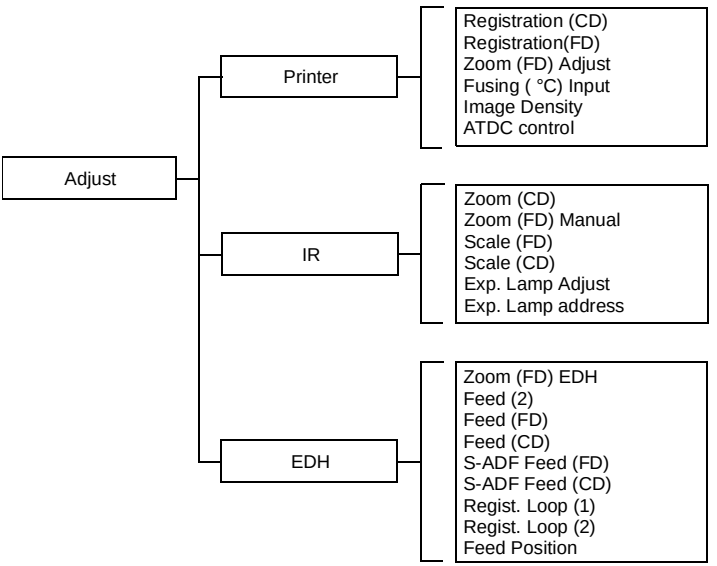
7-1. Adjust Menu Screen



1155S012CA

1155SBS0702A

7-2. Adjust Function Tree



7-3. Adjust Function Setting Procedure

<Functions>
1) Printer.....Used for entering the Adjust values concerning the printer.
2) IR.....Used for entering the Adjust values concerning the IR.
3) EDH.....Used for entering the Adjust values concerning the EDH.

<Setting Procedure>
1. Set the copier into the Tech. Rep. mode by one of the following methods :
   1) With the copier turned ON, press the Tech. Rep. Setting Switch.
   2) With the Meter Count screen opened from Utility, press the following keys in this order.

Stop Key ➧ 0 ➧ 0 ➧ Stop Key ➧ 0 ➧ 1

2. Enter the Adjust mode by pressing the following keys in this order :

Stop Key ➧ Start key

3. Select the particular Adjust function to be set.
4. Make the necessary settings by following the instructions given sequentially on the screen.
Note: The function selected is highlighted.

<Exiting Mode>
Perform any one of the following steps to go back to the Basic screen.
   1) Press the Panel Reset key and Touch [Exit] on the Tech. Rep. Mode screen.
   2) Touch [Menu] on the Adjust screen. Then touch [Exit] on the Tech. Rep. Mode screen.

Tech. Rep. Mode ► Adjust

<Printer>

Touch Panel Display	Setting (The default is **Highlighted** .)
Registration (CD)	Adjust registration of the printer in the main scanning direction by changing the timing at which the laser beam strikes the PC Drum. 1st 2nd 3rd 4th Manual LCC Duplex 600dpi –8.2 ← **0** → +8.2 (Advanced timing) (Retarded timing) Note: The press of the Start key causes the copier to output a test pattern using the paper source currently selected for use.
Registration (FD)	Adjust registration of the printer in the sub-scanning direction by changing the timing at which the Synchronizing Roller is started. 400dpi 600dpi –8.2 ← **0** → +8.2 (Advanced timing) (Retarded timing) Note: The press of the Start key causes the copier to output a test pattern using the paper source currently selected for use.
Zoom (FD) Adjust	Adjust the zoom ratio for the printer in the sub-scanning direction by changing the speed of the Synchronizing Roller and the PC Drum Drive Motor. (–3 to +3) **(0mm)** Note: The press of the Start key causes the copier to output a test pattern using the paper source currently selected for use.

Touch Panel Display	Setting (The default is Highlighted .)
Fusing (°C) Input	Set the temperature for fusing temperature control of the printer. 3 | 2 | 1 195°C | 190°C | 180°C
Image Density	Set the image density for the printer. (–3 to +3) (0)
ATDC Control	Current: Displays the current ATDC control voltage. Set: Set the ATDC control voltage. Note: If the value for "Set" is to be changed, be sure to record the current setting value. (0 to 9.4) (7V)

<IR>

Touch Panel Display	Setting (The default is Highlighted .)
Zoom (CD)	Set the correction value for the zoom ratio in the CD direction. 0.990 ← 1.000 → 1.010 (Smaller) (Greater)
Zoom (CD) Manual	Set the correction value for the zoom ratio in the FD direction. 0.990 ← 1.000 → 1.010 (Smaller) (Greater)
Scale (FD)	Set the correction value for the Original Length Scale position in the FD direction (scanning position). (–7.0 to +7.0) (0.0)
Scale (CD)	Set the correction value for the Original Width Scale position in the CD direction (scanning position). (–12.0 to +12.0) (0.0)
Exp. Lamp Adjust	Set the intensity regulating level of the Exposure Lamp. (48 to 100) Note: This function is only for factory setting and should never be used in the field.
Exp. Lamp address	Set the starting address for light intensity monitoring. (376 to 4920) (2640) Note: This function is only for factory setting and should never be used in the field.

<EDH>

Touch Panel Display	Setting (The default is Highlighted .)
Zoom (FD) EDH	Set the correction value for the zoom ratio in the FD direction when the EDH is used. (0.980 to 1.020) (1.000)

Touch Panel Display	Setting (The default is Highlighted .)
Feed (2)	Set the correction value for the original scanning position for the second page of a 2-sided original when the EDH is used. (–5.0 to +5.0) (0.0mm)
Feed (FD)	Set the correction value for the original scanning position in the FD direction when the EDH is used. (–4.0 to +4.0) (0.0mm)
Feed (CD)	Set the correction value for the original scanning position in the CD direction when the EDH is used. (–3.0 to +3.0) (0.0mm)
S-ADF Feed (FD)	Set the correction value for the original scanning position in the FD direction in the single feed mode. (–4.0 to +4.0) (0.0mm)
S-ADF Feed (CD)	Set the correction value for the original scanning position in the CD direction in the single feed mode. (–3.0 to +3.0) (0.0mm)
Regist. Loop (1)	Set the length of loop to be formed on the leading edge of the 1-sided original before the Registration Roller of the EDH. (–5 to +5) (0mm)
Regist. Loop (2)	Set the length of loop to be formed on the leading edge of the 2-sided original before the Registration Roller of the EDH. (–5 to +5) (0mm)
Feed Position	Set the target stop position of the Scanner during scanning by the EDH. (–2 to +2) (0)

1. INTRODUCTION

1139SBT0101A
1-1. General Precautions

1. When servicing the copier with its covers removed, use utmost care to prevent your hands, clothing, and tools from being caught in revolving parts including the chains and gears. When servicing the copier with the Rear Cover removed, be sure to fit the interlock switch actuating jig in position.
2. Before attempting to replace parts and unplug connectors, make sure that the power cord of the copier has been unplugged from the wall outlet.
3. Never create a closed circuit across connector pins except those specified in the text and on the printed circuit.
4. When creating a closed circuit and measuring a voltage across connector pins specified in the text, be sure to use the green wire (GND).
5. When the user is using a word processor or personal computer from a wall outlet of the same line, take necessary steps to prevent the circuit breaker from opening due to overloads.
6. Keep all disassembled parts in good order and keep tools under control so that none will be lost or damaged.

1139SBT0102A
1-2. How to Use This Book

1. If a component on a PWB or any other functional unit including a motor is defective, the text only instructs you to replace the whole PWB or functional unit and does not give troubleshooting procedures applicable within the defective unit.
2. All troubleshooting procedures contained herein assume that there are no breaks in the harnesses and cords and all connectors are plugged into the right positions.
3. For the removal procedures of covers and parts, see DIS/REASSEMBLY, ADJUSTMENT.
4. The troubleshooting procedures are given in the order of greater frequency of trouble or order of operation.
5. The procedures preclude possible malfunctions due to noise and other external causes.

1139SBT0103A
1-3. Reading the Text

1. The paper transport failure troubleshooting procedures are given according to the symptom. First identify the location where the paper is present and start the procedure for that particular location. For malfunction troubleshooting, start with step 1 and onward.
2. Make checks in numerical order of steps and, if an item is checked okay, go to the next step.

Pattern 1

Step	Check Item	Result	Action
1	Is ...?	YES	Do this.
2		↑	

Go to step 2 if you answered NO.

Pattern 2

Step	Check Item	Result	Action
1	Is ...?	YES	Do this.
		NO	Check that.
2			↑

Go to step 2 if it checks okay.

2. I/O CHECK

1155SBT0201A

2-1. Controlled Parts Check Procedure

To allow the Tech. Rep. to easily and safely determine whether a particular controlled part is fully operational, this copier provides the following provision: checking the data of the input port of the board IC with the copier in the standby state (including a misfeed, malfunction, and closure failure condition) allows the Tech. Rep. to determine whether signals are properly input to a controlled part.

<Procedure>

1) On a circuit diagram accompanying the text, locate the controlled part which is probably defective when a misfeed or malfunction occurs.
2) Select the "I/O Check" function of the Tech. Rep. mode and access the screen which contains the controlled part picked out in step 1 above. (See SWITCHES ON PWBs/TECH. REP. MODE.)
3) Check the input port data to determine whether a signal is properly input to the controlled part.

<Controlled Part Check Procedure Through Checking Input Port Data>

Example:

When a paper misfeed occurs in the paper take-up section of the copier, 1st Drawer Paper Take-Up Sensor PC32 is considered to be responsible for it.

<Procedure>

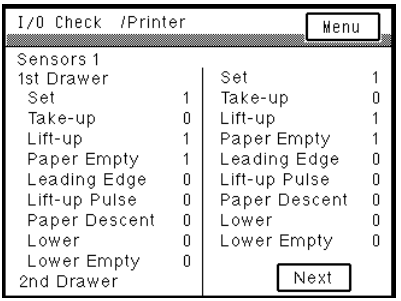
1) Remove the sheet of paper misfed.
2) From the I/O check list, it is found that the signal input to PC32 is "Take-Up" of "1st Drawer."
3) Select "I/O Check" of the Tech. Rep. mode and access the screen which contains "Take-Up" of "1st Drawer."
4) Check that the input port data of "Take-Up" of "1st Drawer" on the screen is "0" (sensor is unblocked).
5) Move the PC32 actuator to block the sensor.
6) Check, at this time, that the input port data of "Take-Up" of "1st Drawer" on the screen changes from "0" to "1."

1: PC32 is operational. 0: PC32 is faulty.

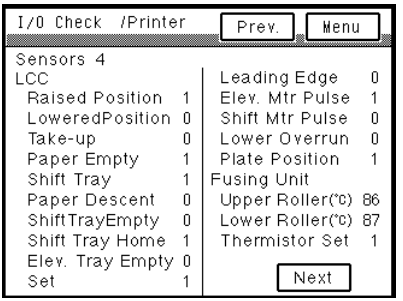
2-2. I/O Check List

<I/O Check Screens>

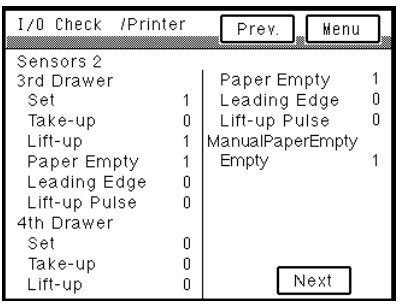
- The following screens are only typical and the port data shown does not necessarily represent the actual one.



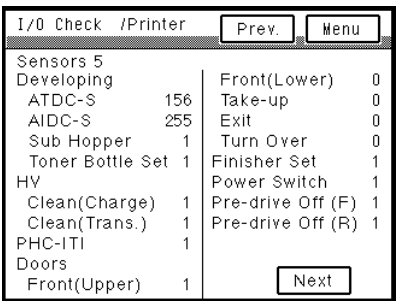
1155T021CC



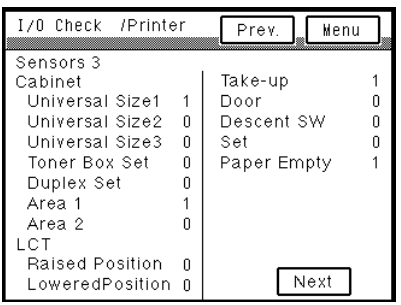
1155T024CC



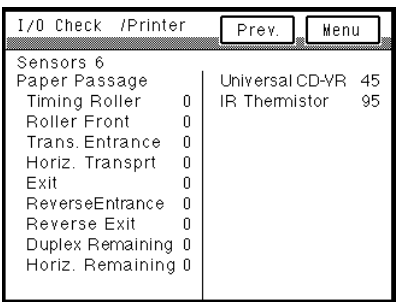
1155T022CC



1155T025CC



1155T023CC



1155T026CC

<I/O Check List>

Symbol	Panel Display		Parts/Signal Name	Operation Characteristics/Panel Display		IC No.	Port No.	CN/PJ No.
				1	0			
PC44	1st Drawer	Set	1st Drawer Set Sensor	In position	Out of position	IC1F	PC1	PJ15F-5B
PC32		Take-up	1st Drawer Paper Take-Up Sensor	Paper present	Paper not present	IC1F	PC3	PJ15F-2A
PC40		Lift-up	1st Drawer Paper Lift-Up Sensor	At upper limit	Not at upper limit	IC1F	PD1	PJ15F-8A
PC48		Paper Empty	1st Drawer Paper Empty Sensor	Paper present	Paper not present	IC1F	PC2	PJ15F-8B
PC36		Leading Edge	Vertical Transport Sensor 1	Paper present	Paper not present	IC1F	PD0	PJ15F-5A
PC25		Lift-up Pulse	1st Drawer Lift-Up Motor Pulse Sensor	Blocked	Unblocked	IC4A	P226	PJ4A-12
UN7		Paper Descent	1st Drawer Paper Descent Key	ON	OFF	IC4A	P224	PJ5A-2A
PC18		Lower	1st Drawer Lower Position Sensor	Blocked	Unblocked	IC4A	P225	PJ5A-8B
PWB-E1		Lower Empty	1st Drawer Paper Empty Key	Paper present	Paper not present	IC4A	P227	PJ5A-1A
PC45	2nd Drawer	Set	2nd Drawer Set Sensor	In position	Out of position	IC2F	PA0	PJ14F-5B
PC33		Take-up	2nd Drawer Paper Take-Up Sensor	Paper present	Paper not present	IC2F	PA2	PJ14F-2A
PC41		Lift-up	2nd Drawer Paper Lift-Up Sensor	At upper limit	Not at upper limit	IC1F	PC0	PJ14F-8A
PC49		Paper Empty	2nd Drawer Paper Empty Sensor	Paper present	Paper not present	IC2F	PA1	PJ14F-8B
PC37		Leading Edge	Vertical Transport Sensor 2	Paper present	Paper not present	IC2F	PA3	PJ14F-5A
PC26		Lift-up Pulse	2nd Drawer Lift-Up Motor Pulse Sensor	Blocked	Unblocked	IC4A	P232	PJ4A-13
UN8		Paper Descent	2nd Drawer Paper Descent Key	ON	OFF	IC4A	P230	PJ5A-4A
PC19		Lower	2nd Drawer Lower Position Sensor	Blocked	Unblocked	IC4A	P231	PJ5A-6B
PWB-E2		Lower Empty	2nd Drawer Paper Empty Key	Paper present	Paper not present	IC4A	P233	PJ5A-3A
PC46	3rd Drawer	Set	3rd Drawer Set Sensor	In position	Out of position	IC2F	PB3	PJ13F-5B
PC34		Take-up	3rd Drawer Paper Take-Up Sensor	Paper present	Paper not present	IC2F	PC1	PJ13F-2A
PC42		Lift-up	3rd Drawer Paper Lift-Up Sensor	At upper limit	Not at upper limit	IC2F	PC0	PJ13F-8A
PC50		Paper Empty	3rd Drawer Paper Empty Sensor	Paper present	Paper not present	IC2F	PC3	PJ13F-8B
PC38		Leading Edge	Vertical Transport Sensor 3	Paper present	Paper not present	IC2F	PC2	PJ13F-5A
———		Lift-up Pulse	———	———	———	———	———	———
———	4th Drawer	Set	———	———	———	———	———	———
———		Take-up	———	———	———	———	———	———
———		Lift-up	———	———	———	———	———	———
———		Paper Empty	———	———	———	———	———	———
———		Leading Edge	———	———	———	———	———	———
———		Lift-up Pulse	———	———	———	———	———	———
PC6	Manual Paper Empty	Empty	Manual Feed Paper Empty Sensor	Paper present	Paper not present	IC4A	P220	PJ7A-9B

Symbol	Panel Display		Parts/Signal Name	Operation Characteristics/Panel Display		IC No.	Port No.	CN/PJ No.
				1	0			
S12	Cabinet	Universal Size 1	Paper Size Detecting Switch FD1	ON	OFF	IC2F	PF0	PJ11F-9
S13		Universal Size 2	Paper Size Detecting Switch FD2	ON	OFF	IC2F	PF1	PJ11F-7
S14		Universal Size 3	Paper Size Detecting Switch FD3	ON	OFF	IC2F	PF2	PJ11F-5
PC53		Toner Box Set	Toner Collecting Bottle Set Sensor	In position	Out of position	IC2F	PF3	PJ11F-2
———		Duplex Set	Horizontal Transport Unit Set Switch	In position	Out of position	IC4A	P206	PJ7A-6B
———		Area 1	Marketing Area 1 Switch	3-drawer type	4-drawer type	IC4A	P245	PJ5A-5A
———		Area 2	Marketing Area 2 Switch	MJ/MH	MC	IC4A	P246	PJ5A-6A
PC1	LCT	Raised Position	Paper Plate Raised Position Sensor	At upper limit	Not at upper limit	IC1A	PC0	PJ2A-8A
PC6		Lowered Position	Paper Plate Lowered Position Sensor	At lower limit	Not at lower limit	IC1A	PG3	PJ2A-5A
PC4		Take-up	Paper Feed Sensor	Paper not present	Paper present	IC1A	PG0	PJ2A-2B
PC5		Door	Tray Door Sensor	In position	Out of position	IC1A	PG2	PJ2A-2A
S1B		Descent SW	Paper Plate Descent Switch	ON	OFF	IC1A	PG1	PJ3A-2
PC3		Set	Set Sensor	In position	Out of position	IC1A	PC2	PJ2A-5B
PC2		Paper Empty	Paper Empty Sensor	Paper not present	Paper present	IC1A	PC1	PJ2A-8B
PC42	LCC	Raised Position	3rd Drawer Paper Lift-Up Sensor	At upper limit	Not at upper limit	IC2F	PC0	PJ13F-8A
PC20		Lowered Position	3rd Drawer Lower Position Sensor	At lower limit	Not at lower limit	IC4A	P235	PJ4A-9
PC34		Take-up	3rd Drawer Paper Take-Up Sensor	Paper present	Paper not present	IC2F	PC1	PJ13F-2A
PC50		Paper Empty	3rd Drawer Paper Empty Sensor	Paper present	Paper not present	IC2F	PC3	PJ13F-8B
PC23		Shift Tray	3rd Drawer Shifter Return Position Sensor	At return position	Not at return position	IC4A	P237	PJ4A-7
UN9		Paper Descent	3rd Drawer Paper Descent Key	ON	OFF	IC4A	P234	PJ4A-10
PC31		Shift Tray Empty	3rd Drawer Shift Tray Paper Empty Sensor	Paper present	Paper not present	IC4A	P242	PJ4A-4
PC22		Shift Tray Home	3rd Drawer Shifter Home Position Sensor	At home	Not at home	IC4A	P236	PJ4A-8
PWB-E		Elev. Tray Empty	3rd Drawer Paper Empty Board	Paper present	Paper not present	IC4A	P240	PJ4A-6
PC24		Set	3rd Drawer Set Sensor	In position	Out of position	IC2F	PB3	PJ8F-2
PC38		Leading Edge	Vertical Transport Sensor 3	Paper present	Paper not present	IC2F	PC2	PJ13F-5A
PC29		Elev. Mtr Pulse	3rd Drawer Elevator Motor Pulse Sensor	Blocked	Unblocked	IC4A	P241	PJ4A-5
PC30		Shift Mtr Pulse	3rd Drawer Shift Motor Pulse Sensor	Blocked	Unblocked	IC4A	P243	PJ4A-3
PC21		Lower Overrun	3rd Drawer Overrun Detecting Sensor	At lower limit	Not at lower limit	IC4A	P244	PJ4A-2
PC52		Plate Position	3rd Drawer Shift Gate Position Sensor	Blocked	Unblocked	IC1A	AN16	PJ4A-1

Symbol	Panel Display		Parts/Signal Name	Operation Characteristics/Panel Display		IC No.	Port No.	CN/PJ No.
				1	0			
TH1	Fusing Unit	Upper Roller (°C)	Upper Fusing Roller Thermistor	Voltage value (A/D converted)		IC1A	ANI0	PJ3A-9B
TH2		Lower Roller (°C)	Lower Fusing Roller Thermistor	Voltage value (A/D converted)		IC1A	ANI1	PJ3A-10B
———		Thermistor Set	Thermistor Set Switch	In position	Out of position	IC1A	P17	PJ3A-1B
UN4	Developing	ATDC-S	ATDC Sensor	Voltage value (A/D converted)		IC1A	ANI3	PJ8A-10B
UN6		AIDC-S	AIDC Sensor	Voltage value (A/D converted)		IC1A	ANI2	PJ10A-1B
S7		Sub Hopper	Sub Hopper Toner Empty Switch	Toner loaded	Toner empty	IC5A	P303	PJ8A-12B
PC4		Toner Bottle Set	Toner Bottle Home Position Sensor	At home	Not at home	IC5A	P321	PJ2A-5A
PC16	HV	Clean (Charge)	Drum Comb Cleaning Home Position Sensor	At home	Not at home	IC3A	P154	PJ9A-14A
PC17		Clean (Trans.)	Transfer/Separator Wire Cleaning Home Position Sensor	At home	Not at home	IC3A	P155	PJ3A-4B
———		PHC-ITI	PHC ITI signal	ON	OFF	IC3A	P121	PJ12A-29A
PC8	Doors	Front (Upper)	Upper Front Door Set Sensor	When opened	When closed	IC5A	P320	PJ2A-2A
S2		Front (Lower)	Lower Front Door Interlock Switch	When opened	When closed	IC5A	P325	PJ6A-14A
S3		Take-up	Right Door Interlock Switch	When opened	When closed	IC4A	P247	PJ3A-13B
S4		Exit	Upper Left Door Interlock Switch	When opened	When closed	IC5A	P300	PJ10A-12B
S5		Turn Over	Lower Left Door Interlock Switch	When opened	When closed	IC5A	P322	PJ8A-10A
———		Finisher set	Finisher Set Switch	In position	Out of position	IC5A	P301	PJ8A-4A
S1		Power Switch	Power Switch	ON	OFF	IC5A	P326	PJ6A-15A
S6		Pre-drive Off (F)	Predrive OFF Front Switch	Closed	Open	IC4A	P205	PJ2A-8A
PC5		Pre-drive Off (R)	Predrive OFF Rear Sensor	Blocked	Unblocked	IC4A	P223	PJ9A-11B
PC2	Paper Passage	Timing Roller	Paper Leading Edge Sensor	Paper present	Paper not present	IC4A	P200	PJ3A-2B
PC1		Roller Front	Transport Roller Sensor	Paper present	Paper not present	IC4A	P201	PJ3A-3B
PC13		Trans. Entrance	Duplex Unit Horizontal Transport Entry Sensor	Paper present	Paper not present	IC4A	P222	PJ7A-4B
PC12		Horiz. Transprt	Duplex Unit Horizontal Transport Sensor	Paper present	Paper not present	IC4A	P221	PJ7A-3B
S10		Exit	Paper Exit Switch	Paper present	Paper not present	IC5A	P307	PJ2A-13A
PC11		Reverse Entrance	Turnover Feed Entry Sensor	Paper present	Paper not present	IC5A	P323	PJ6A-14B
PC14		Reverse Exit	Turnover/Exit Sensor	Paper present	Paper not present	IC5A	P324	PJ6A-6B
PC57		Duplex Remaining	Turnover Feed Jam Sensor	Paper present	Paper not present	IC1A	INTP5	PJ6A-11B
PC56		Horiz. Remaining	Duplex Unit Horizontal Transport Jam Sensor	Paper present	Paper not present	IC1A	S10	PJ7A-5B
VR		Universal CD-VR	Universal Tray Width Detection Resistor	Voltage value (A/D converted)		IC1A	ANI4	PJ8A-8B
UN13		IR Thermistor	Exposure Lamp Heater	Voltage value (A/D converted)		IC1A	ANI5	PJ7A-10A

3. PAPER TRANSPORT FAILURE

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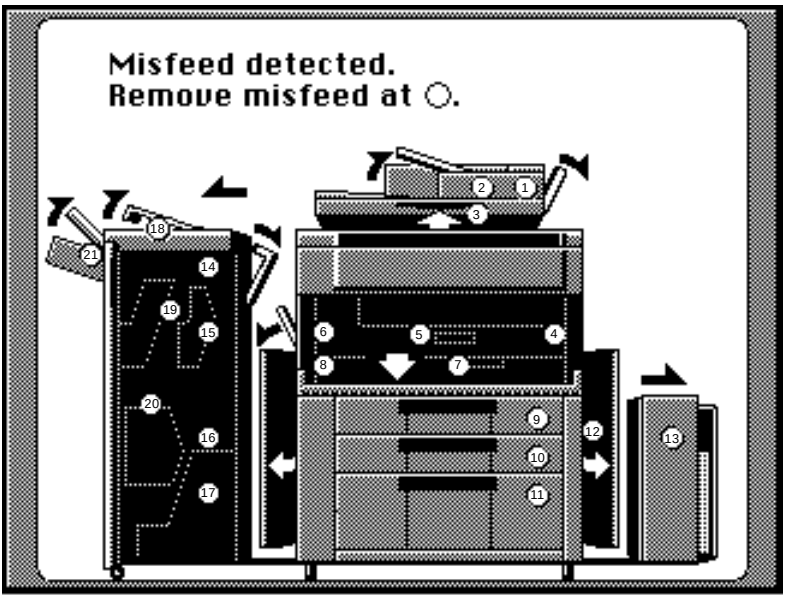
3-1. Paper Misfeed

When a paper misfeed occurs, the Touch Panel shows the corresponding message, misfeed location, and paper location.

Blinking	Misfeed location
Lit	Paper location



1155O632CA

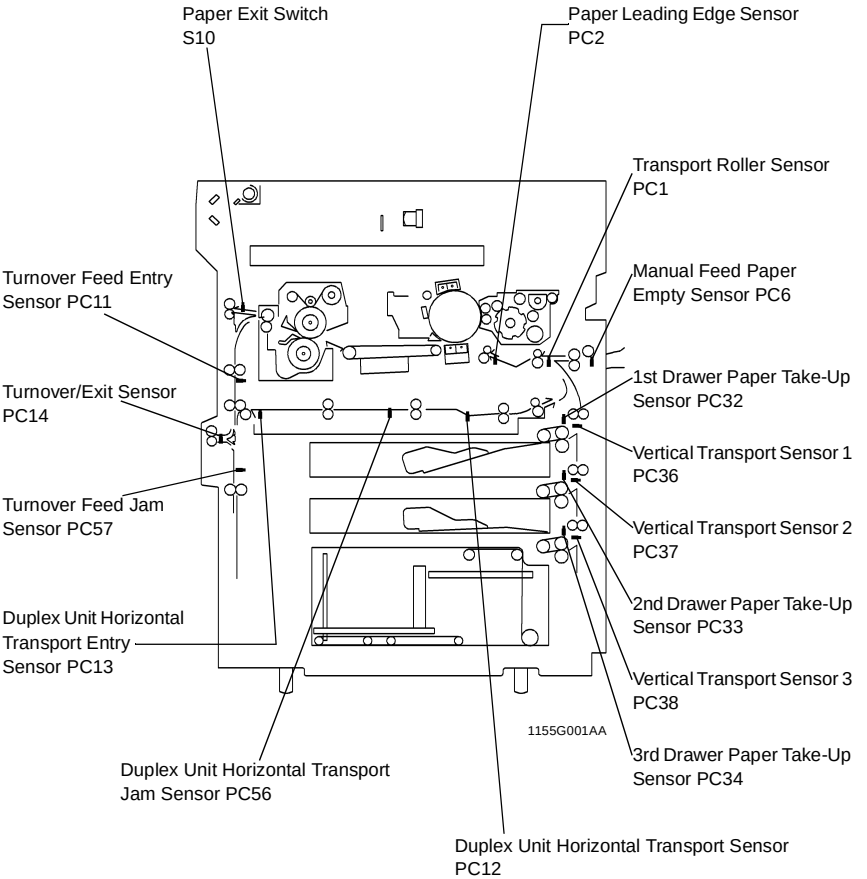
Lit/Blinking LED	Misfeed/Paper Location	Ref. Page	OP
①	ADF take-up	See the relevant option service manual.	*
②	ADF turnover/exit		*
③	ADF transport		*
④	Multi bypass take-up	3)	
⑤	Copier transport/separator	2)	
⑥	Copier fusing	4)	
⑦	Duplex horizontal transport	5)	
⑧	Duplex turnover	5)	
⑨	1st Drawer take-up	1)	
⑩	2nd Drawer take-up	1)	
⑪	3rd Drawer take-up	1)	
⑫	Vertical transport (lower right of copier)	1)	
⑬	LCC	See the relevant option service manual.	*
⑭	Entrance to Non-Sort/Finisher Tray		*
⑮	Vertical transport through Finisher		*
⑯	Entrance to Elevator Tray		*
⑰	Paper Folding Unit		*
⑱	Exit to Non-Sort Tray		*
⑲	Copy stack transport		*
⑳	Exit to Elevator Tray		*
㉑	Exit to Finisher Tray		*

* When an option is installed.

<Misfeed Display Resetting Method>

Misfeed in the copier	Open the relevant doors, remove all sheets of paper misfed and left inside, and then close all doors.
Misfeed in the option	Open and close or re-connect the option.

<Misfeed Detection Sensor Layout>



3-2. Types of Misfeed Detection and Detection Timings

<Copier Take-Up Misfeed>

Type	Detection Timing
Paper take-up failure detection	1st Drawer Paper Take-Up Sensor PC32 is not blocked ([L]) even after the lapse of approx. 0.3 sec. after 1st Drawer Paper Take-Up Clutch CL3 has been energized (after two paper take-up retry sequences). Note: This also applies to the 2nd and 3rd Drawers.
Paper take-up trailing edge detection	PC32 is not unblocked ([H]) even after the lapse of T (which varies depending on the paper size) after it has been blocked ([L]). Note: This also applies to the 2nd and 3rd Drawers.
Leading edge detection by Transport Roller Sensor PC1	PC1 is not blocked ([L]) even after the lapse of approx. 0.9 sec. after 1st Drawer Paper Take-Up Sensor PC32 has been blocked ([L]).
	PC1 is not blocked ([L]) even after the lapse of approx. 1.2 sec. after 2nd Drawer Paper Take-Up Sensor PC33 has been blocked ([L]).
	PC1 is not blocked ([L]) even after the lapse of approx. 1.5 sec. after 3rd Drawer Paper Take-Up Sensor PC34 has been blocked ([L]).

<Multi Bypass Misfeed>

Type	Detection Timing
Bypass paper take-up failure detection	PC1 is not blocked ([L]) even after the lapse of approx. 0.5 sec. after Manual Feed Paper Take-Up Clutch CL1 has been energized (after one paper take-up retry sequence).

<Transport/Separator Misfeed>

Type	Detection Timing
Leading edge detection by Paper Leading Edge Sensor PC2	PC2 is not blocked ([L]) even after the lapse of approx. 0.4 sec. after PC1 has been blocked ([L]).
Leading edge detection by Paper Exit Switch S10	S10 is not actuated even after the lapse of approx. 1.9 sec. after Synchronizing Motor M5 has been energized.
Leading edge detection by Turnover Feed Entry Sensor PC11	PC11 is not blocked ([L]) even after the lapse of approx. 2.3 sec. after M5 has been energized.

<Fusing/Exit Misfeed>

Type	Detection Timing
Trailing edge detection by Paper Exit Switch S10	S10 is not deactuated even after the lapse of approx. 2.0 sec. after PC2 has been unblocked ([H]) when the paper is fed out onto the Upper Exit Tray.

<Duplex Unit Paper Take-Up Misfeed>

Type	Detection Timing
Trailing edge detection by Turnover Feed Entry Sensor PC11	PC11 is not unblocked ([H]) even after the lapse of approx. 2.3 sec. after Paper Leading Edge Sensor PC2 has been unblocked ([H]) when the paper is fed out onto the Lower Exit Tray or stored in the Duplex Unit.
Leading edge detection by Duplex Unit Horizontal Transport Entry Sensor PC13	PC13 is not blocked ([L]) even after the lapse of approx. 0.7 sec. after PC11 has been unblocked ([H]).
Leading edge detection by Transport Roller Sensor PC1	PC1 is not blocked ([L]) even after the lapse of approx. 2.5 sec. after PC13 has been blocked ([L]) when the paper is stored into the Duplex Unit.
Leading edge detection by Turnover/Exit Sensor PC14	PC14 is not blocked ([L]) even after the lapse of approx. 0.9 sec. after the paper, which is to be turned over and fed out through the lower exit port, has unblocked ([H]) PC11.
Leading edge detection by Turnover/Exit Sensor PC14	PC14 is not blocked ([L]) even after the lapse of approx. 0.6 sec. after the paper, which is to be fed out through the lower exit port, has blocked PC11.
Trailing edge detection by Turnover/Exit Sensor PC14	PC14 is not unblocked ([H]) even after the lapse of approx. 1.6 sec. after it has been blocked ([L]).

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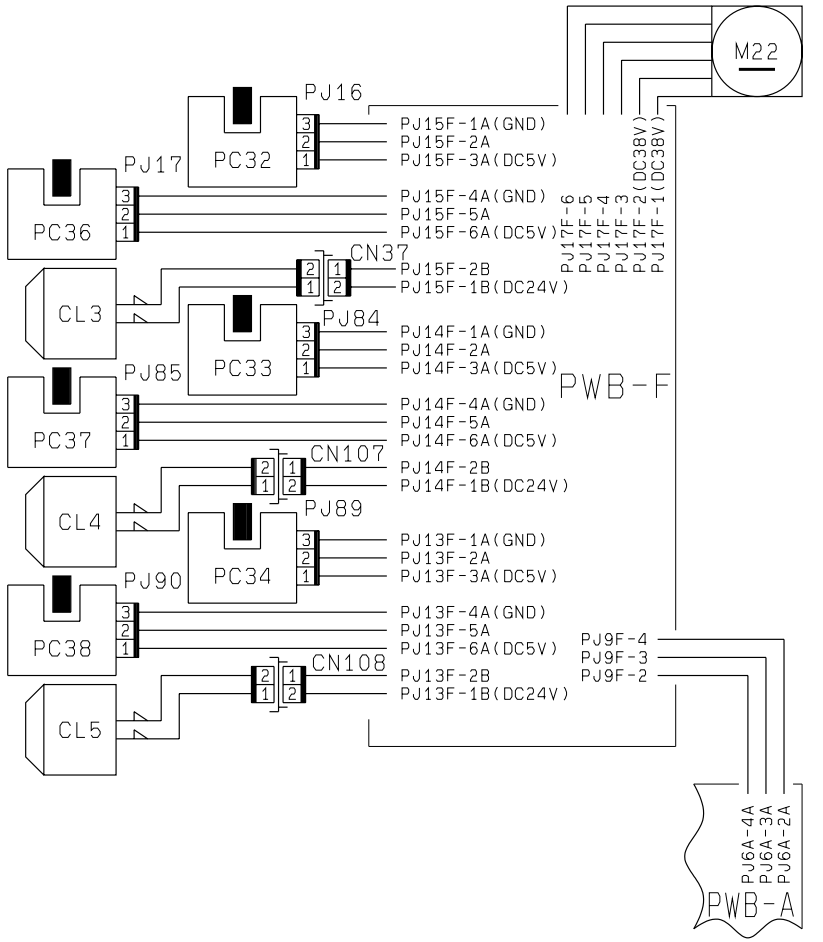
3-3. Misfeed Clearing Procedures

1) Copier Take-Up Misfeed

Relevant Electrical Parts	
1st Drawer Paper Take-Up Clutch CL3	Vertical Transport Motor M22
2nd Drawer Paper Take-Up Clutch CL4	Vertical Transport Sensor 1 PC36
3rd Drawer Paper Take-Up Clutch CL5	Vertical Transport Sensor 2 PC37
1st Drawer Paper Take-Up Sensor PC32	Vertical Transport Sensor 3 PC38
2nd Drawer Paper Take-Up Sensor PC33	Master Board PWB-A
3rd Drawer Paper Take-Up Sensor PC34	Drawer S/P Board PWB-F



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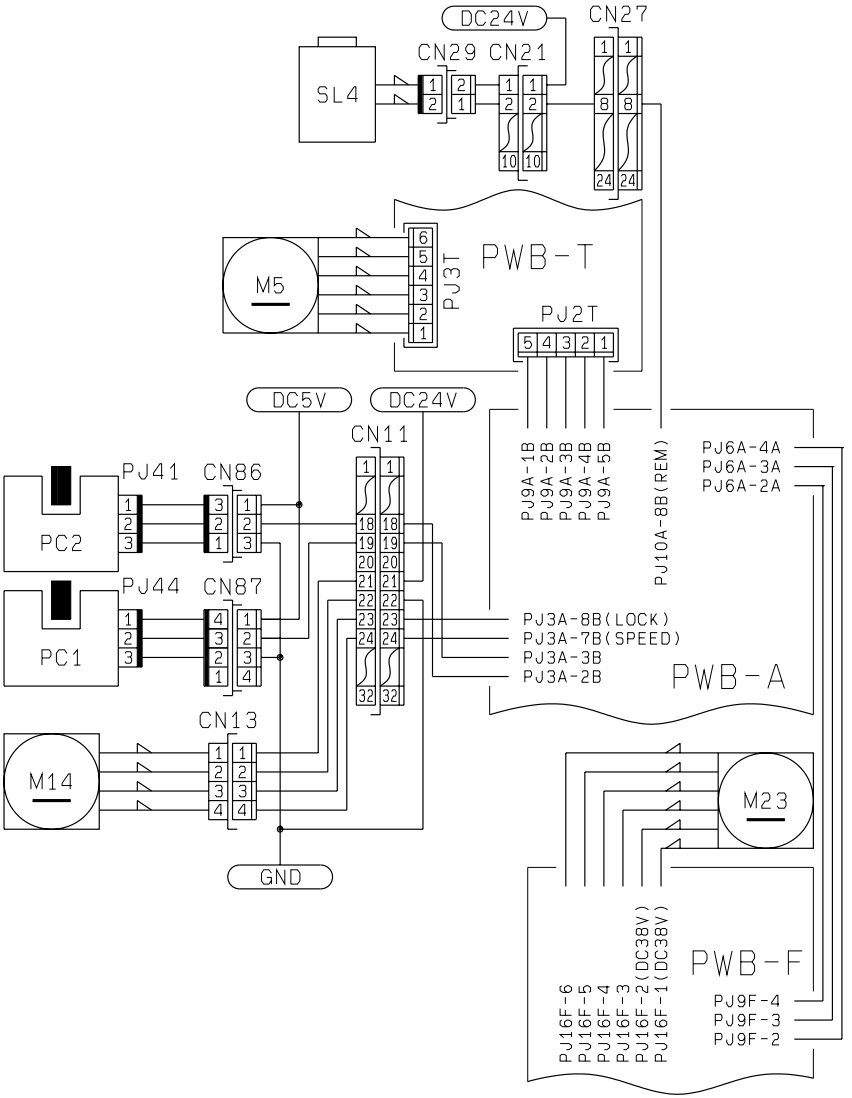
<Copier Take-Up Misfeed Clearing Procedure>

Symptom	Step	Check Item	Result	Action
• Paper is not taken up at all. • Paper is at a stop before the Vertical Transport Sensor.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, wavy, or damp?	YES	Change the paper. Instruct the user on the storage of paper.
	3	Are the Edge Guide and Trailing Edge Stop (of the drawer) positioned to the exact sizes of the paper used?	NO	Slide the guides to the exact size of the paper.
	4	Are the Paper Take-Up Roll and Paper Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or change the defective roll.
	5	Is the Paper Take-Up Guide Plate dirty or deformed?	YES	Clean or change the guide plate.
	6	When the 1st Drawer is use Check CL3 for operation. Does the voltage across PJ15F-2B on PWB-F and GND change from DC24V to DC0V when the Start key is pressed?	YES	Change CL3.
			NO	Change PWB-F or PWB-A.
	7	When the 2nd Drawer is use Check CL4 for operation. Does the voltage across PJ14F-2B on PWB-F and GND change from DC24V to DC0V when the Start key is pressed?	YES	Change CL4.
			NO	Change PWB-F or PWB-A.
	8	When the 3rd Drawer is use Check CL5 for operation. Does the voltage across PJ13F-2B on PWB-F and GND change from DC24V to DC0V when the Start key is pressed?	YES	Change CL5.
			NO	Change PWB-F or PWB-A.
Paper is at a stop in the vertical transport section.	1	Are the Vertical Transport Rollers deformed, worn, or dirty with paper dust?	YES	Clean or change the Vertical Transport Rollers.
	2	Is the Paper Take-Up or Vertical Transport Guide Plate deformed or dirty?	YES	Clean or change the defective guide plate.
	3	Does M22 turn when the Start key is pressed?	NO	Check for overload. Then, check step 5 and onward.
	4	Is each of the voltages across PJ17F-1 on PWB-F and GND and that across PJ17F-2 and GND DC38V?	YES	Change M22.
			NO	Change PWB-A or PWB-F.
	5	Is each Paper Take-Up Sensor (PC32, 33, 34) fully operational? Make the input port check using “I/O Check.”	NO	Check the actuator of the defective sensor for operation and, if it is okay, change the sensor.
	6	Is each Vertical Transport Sensor (PC36, 37, 38) fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-F or PWB-A.
			NO	Check the actuator of the defective sensor for operation and, if it is okay, change the sensor.

2) Transport/Separator Misfeed

Relevant Electrical Parts	
Transport Motor M23	Suction Fan Motor M14
Transport Roller Sensor PC1	Master Board PWB-A
Synchronizing Motor M5	Synchronizing Motor Control Board PWB-T
Paper Leading Edge Sensor PC2	Drawer S/P Board PWB-F
Separator Finger Solenoid SL4	



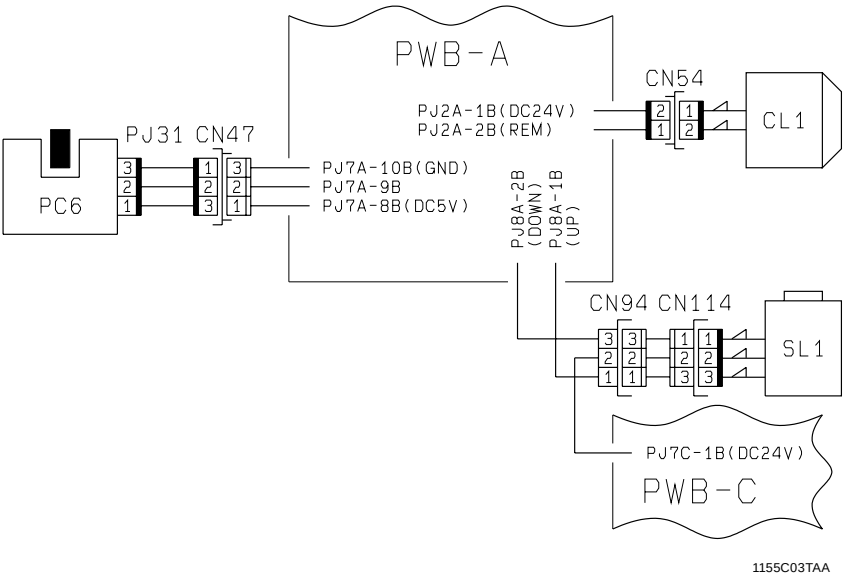
<Transport/Separator Misfeed clearing Procedure>

Symptom	Step	Check Item	Result	Action
Paper is at a stop at the Transport Rollers.	1	Are the Transport Rollers deformed, worn, or dirty with paper dust?	YES	Clean or change the Transport Rollers.
	2	Does M23 turn when the Start key is pressed?	NO	Check for overload and then check step 4.
	3	Is the voltage across PJ16F-1 on PWB-F and GND and that across PJ16F-2 and GND DC38V?	YES	Change M23.
			NO	Change PWB-A or PWB-F.
	4	Is PC1 fully operational? Make the input port check using "I/O Check."	YES	Change PWB-A.
			NO	Check the PC1 actuator for operation and, if it is okay, change PC1.
Paper is at a stop at the Synchronizing Rollers.	1	Are the Synchronizing Rollers deformed, worn, or dirty with paper dust?	YES	Clean or change the Synchronizing Rollers.
	2	Is a proper length of loop formed before the Synchronizing Rollers?	NO	Select "Tech. Rep.," "Tech. Rep. Choice," "Printer," and "Loop Adjustment," in that order to make the loop adjustment.
	3	Does M5 turn when the Start key is pressed?	NO	Check for overload and then check step 5.
	4	Is the voltage across PJ13T-1 on PWB-T and GND and that across PJ13T-2 and GND DC38V?	YES	Change PWB-A or M5.
			NO	Change PWB-T.
	5	Is PC2 fully operational? Make the input port check using "I/O Check."	YES	Change PWB-A.
			NO	Check the PC2 actuator for operation and, if it is okay, change PC2.

Symptom	Step	Check Item	Result	Action
Paper is at a stop near the PC Drum.	1	Is the Pre-Image Transfer Guide Plate dirty or deformed, or has the seal been separated?	YES	Clean or change the guide plate.
	2	Are the Image Transfer/Paper Separator Corona Wires dirty or deformed?	YES	Clean or change the defective corona wire.
	3	Is the paper guide above the Paper Separator Corona dirty or deformed?	YES	Clean or change the paper guide.
Paper is wedged at the PC Drum Paper Separator Fingers.	1	Are the PC Drum Paper Separator Fingers dirty or deformed?	YES	Clean or change the separator fingers.
	2	Do the PC Drum Paper Separator Fingers move smoothly when operated manually?	NO	Change the separator fingers.
	3	Is there a gap between the PC Drum Paper Separator Fingers and the surface of the PC Drum when step 2 is performed again?	YES	Adjust the position of the PC Drum Paper Separator Fingers.
	4	Check SL4 for operation. Does the voltage across PJ10A-8B on PWB-A and GND change from DC24V to DC0V when the Start key is pressed?	YES	Change SL4.
			NO	Change PWB-A.
Paper is at a stop on the Suction Belts.	1	Do the Suction Belts turn when PC Drum Drive Motor M2 is energized?	NO	Check the drive gear engagement and timing belt.
	2	Check M14 for operation. Does the voltage across PJ3A-7B on PWB-A and GND change from DC0V to DC3V when the Start key is pressed?	YES	Check the Suction Belts and change M14.
			NO	Change PWB-A.

3) Multi Bypass Misfeed

Relevant Electrical Parts	
Manual Feed Paper Take-Up Clutch CL1 Manual Feed Paper Empty Sensor PC6	Manual Feed Paper Pressure Solenoid SL1 Master Board PWB-A Power Supply Board PWB-C

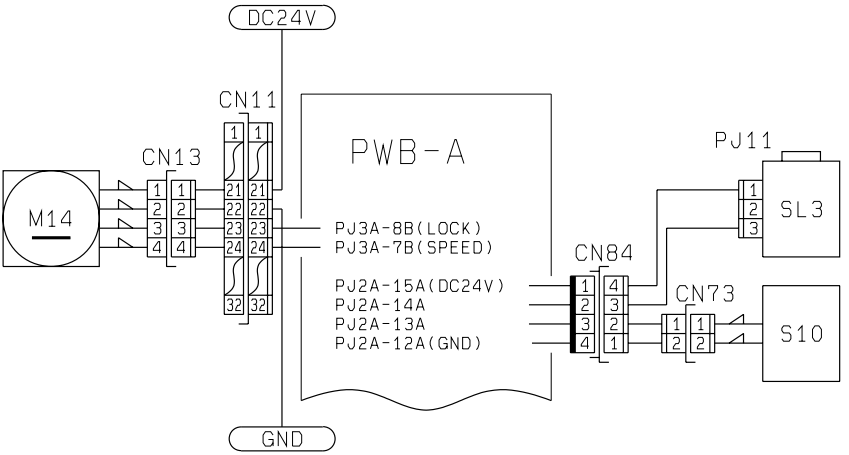


<Multi Bypass Misfeed Clearing Procedure>

Symptom	Step	Check Item	Result	Action
Paper is not taken up at all.	1	Does the paper being used meet product specifications?	NO	Instruct the user to use the paper that meets product specifications.
	2	Is the paper curled, wavy, or damp?	YES	Change the paper. Instruct the user on the storage of paper.
	3	Are the pressure pad and guide plate dirty or deformed?	YES	Clean or change the pressure pad or guide plate.
	4	Are the Manual Feed Paper Take-Up Rolls deformed, worn, or dirty with paper dust?	YES	Clean or change the Manual Feed Paper Take-Up Rolls.
	5	Check CL1 for operation. Does the voltage across PJ2A-2B on PWB-A and GND change from DC24V to DC0V when the Start key is pressed after paper has been loaded on the Multi Bypass Table?	NO	Change PWB-A.
	6	Check SL1 for operation. Does the voltage across PJ8A-2B on PWB-A and GND change from DC24V to DC0V when the Start key is pressed after paper has been loaded on the Multi Bypass Table?	NO	Change PWB-A.
	7	Is PC6 fully operational? Make the input port check using “I/O Check.”	YES	Change CL1, SL1, or PWB-A.
			NO	Check the PC6 actuator for operation and, if it is okay, change PC6.

4) Fusing/Exit Misfeed

Relevant Electrical Parts	
Suction Fan Motor M14	Exit /Duplex Switching Solenoid SL3
Paper Exit Switch S10	Master Board PWB-A

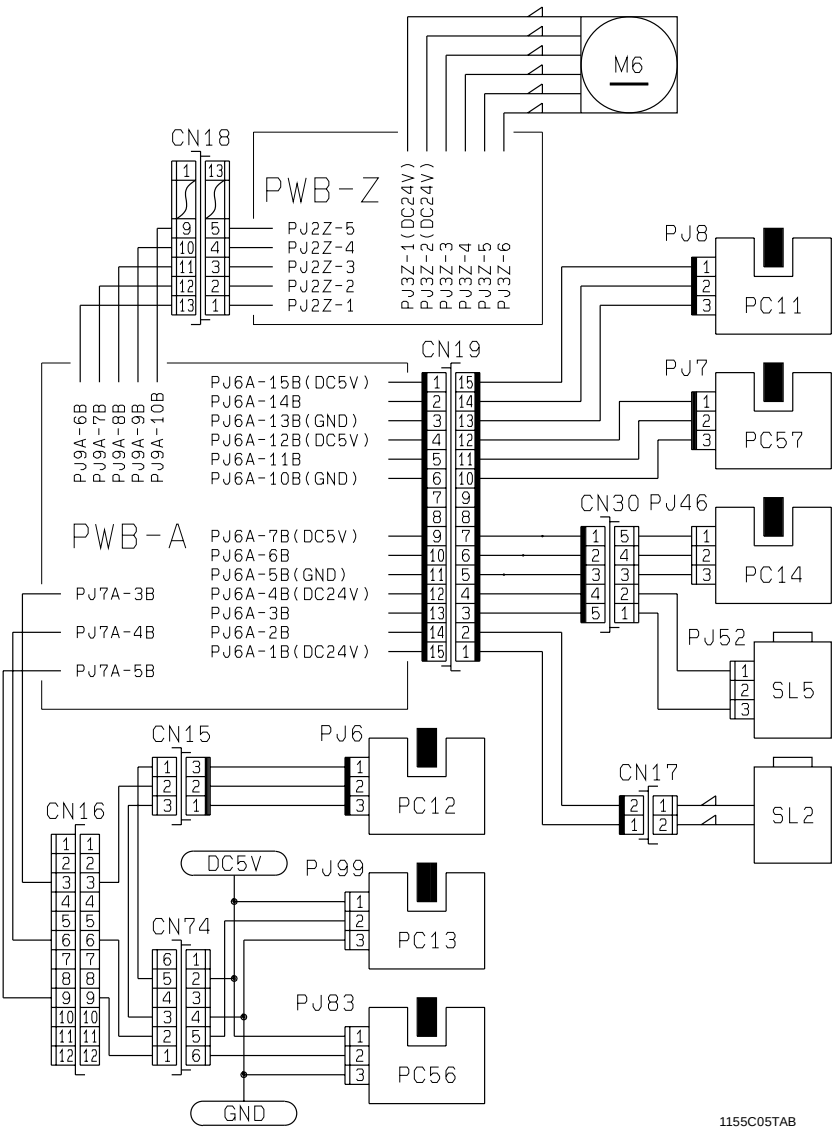


<Fusing/Exit Misfeed Clearing Procedure>

Symptom	Step	Check Item	Result	Action
Paper is at a stop before the Fusing Roller.	1	Is the Fusing Guide Plate dirty or deformed?	YES	Clean or change the Fusing Guide Plate.
	2	Check M14 for operation. Does the voltage across PJ3A-7B on PWB-A and GND change from DC0V to DC3V when the Start key is pressed?	YES	Check the Suction Belts and change M14.
			NO	Change PWB-A.
Paper is at a stop at the Fusing Roller.	1	Are the Fusing Rollers dirty or scratched?	YES	Clean or change the Fusing Rollers.
	2	Are the Fusing Roller Paper Separator Fingers deformed, worn, or dirty?	YES	Clean, correct, or change the Paper Separator Fingers.
	3	Is the Oil Roller dirty?	YES	Clean or change the Oil Roller.
Paper is at a stop in the exit section.	1	Are the Exit/Duplex Switching Lever and Transport Guide Plate dirty or deformed?	YES	Clean or change the defective lever and/or guide plate.
	2	Check SL3 for operation. Does the voltage across PJ2A-14A on PWB-A and GND change from DC24V to DC0V when a copy cycle is run using the Multi Bypass Table and with special paper selected?	YES	Change SL3.
			NO	Change PWB-A.
	3	Is S10 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A.
			NO	Change S10.

5) Duplex Unit Take-Up Misfeed

Relevant Electrical Parts	
Turnover Feed Entry Sensor PC11	Duplex Unit Horizontal Transport Jam Sensor PC56
Duplex Unit Horizontal Transport Sensor PC12	Turnover Feed Jam Sensor PC57
Duplex Unit Horizontal Transport Entry Sensor PC13	Duplex Unit Paper Take-Up Solenoid SL2
Turnover/Exit Sensor PC14	Master Board PWB-A
Duplex Unit Turnover Exit Solenoid SL5	Duplex Unit Turnover Motor Control Board PWB-Z
Duplex Unit Turnover Motor M6	



<Duplex Unit Take-Up Misfeed Clearing Procedure>

Symptom	Step	Check Item	Result	Action
Paper is at a stop in the vertical transport section of the Duplex Unit.	1	Does M6 turn during a 2-sided copy cycle?	NO	Check for overloads and then check step 4 and onward.
	2	Is the knob of the Horizontal Transport Unit turning during a 2-sided copy cycle?	NO	Check gears and proper engagement.
	3	Is the voltage across PJ3Z-1 on PWB-F and GND and that across PJ3Z-2 and GND DC24V?	YES	Change PWB-A or M6.
			NO	Change PWB-Z.
	4	Do the Duplex Unit Vertical Transport Roller and Duplex Unit Drive Coupling operate properly during a 2-sided copy cycle?	NO	Check gears, belts, roller, and proper engagement, and check the gear coupling for torn pieces of paper.
	5	Is a torn piece of paper present on the paper path surface?	YES	Remove the torn piece of paper.
	6	Is PC11 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A.
			NO	Check the PC11 actuator for operation and, if it is okay, change PC11.
Paper is at a stop in the turnover section of the Duplex Unit.	1	Is the Turnover Guide Plate dirty or deformed? Is the Turnover Roller dirty?	YES	Clean or change the Turnover Guide Plate or Turnover Roller.
	2	Is PC14 fully operational? Make the input port check using “I/O Check.”	NO	Check the PC14 actuator for operation and, if it is okay, change PC14.
	3	Has the misfeed occurred when a copy cycle was run in the Sort and Folding mode?	NO	Check step 6.

Symptom	Step	Check Item	Result	Action
Paper is at a stop in the turn-over section of the Duplex Unit.	5	Check SL5 for operation. Does the voltage across PJ6A-3B on PWB-A and GND change from DC24V to DC0V when a copy cycle is run in the Sort and Folding mode?	NO	Change PWB-A.
	6	Has the misfeed occurred when a copy cycle was run to make two or more copies?	NO	Check step 8.
	7	Check SL2 for operation. Does the voltage across PJ6A-2B on PWB-A and GND change from DC24V to DC0V when a copy cycle is run to make two or more copies?	NO	Change PWB-A.
	8	Is PC57 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A, SL5 (if step 5 has been checked) or SL2 (if step 7 has been checked).
			NO	Check the PC57 actuator for operation and, if it is okay, change PC57.
The leading edge of the paper is at a stop in the horizontal transport section of the Duplex Unit.	1	Is the Paper Guide Sheet dirty or deformed?	YES	Clean or change the guide sheet.
	2	Is PC13 fully operational? Make the input port check using “I/O Check.”	NO	Check the PC13 actuator for operation and, if it is okay, change PC13.
	3	Is PC56 fully operational? Make the input port check using “I/O Check.”	NO	Check the PC56 actuator for operation and, if it is okay, change PC56.
	4	Is PC12 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A.
			NO	Check the PC12 actuator for operation and, if it is okay, change PC12.
Paper is not taken up at all.	1	Are the Take-Up Roll, Feed Roll, and Separator Roll deformed, worn, or dirty with paper dust?	YES	Clean or change the defective roll.

4. MALFUNCTION

The copier CPU has a function that self-diagnoses the copier conditions. On detection of a malfunction, the corresponding malfunction name, location, and definition codes are shown on the Touch Panel together with a technical representative call message.

- Perform the following steps to reset malfunctions.

<Malfunction Resetting Procedure>

- Press the Trouble Reset Switch on Tech. Rep. Setting Switches Board PWB-S for the fusing malfunctions (C05##).
- Turn OFF and ON the Power Switch for the following malfunctions:
  C1401, C1402, C1410, C1430, C1461, C1462, C1468, C1469.
- Open and close the Lower Front Door for any other malfunctions.

4-1. Detection Timing by Malfunction Code

C00** Drive system malfunctions

Code	Description	Detection Timing
C0000	Fusing Motor M3's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M3 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M3 remains deenergized.
C0010	PC Drum Drive Motor M2's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M2 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M2 remains deenergized.
C0020	Paper Take-Up Motor M21's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M21 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M21 remains deenergized.
C0040	Suction Fan Motor M14's failure to turn	The Lock signal remains HIGH for a continuous 1.5-sec. or more period while the Main Relay remains ON.
C0042	Toner Suction Fan Motor M13's failure to turn	The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M13 remains energized.
C0048	• Hard Disk Drive Cooling Fan Motor 1 M34's failure to turn • Hard Disk Drive Cooling Fan Motor 2 M35's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M34 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M34 remains deenergized. • The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M35 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M35 remains deenergized.
C0049	PH Cooling Fan Motor M19's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M19 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M19 remains deenergized.
C004A	PC Drum Cooling Fan Motor M17's failure to turn	The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M17 remains energized.
C004B	CCD Cooling Fan Motor M32's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M32 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M32 remains deenergized.
C004C	Ozone Ventilation Fan Motor M12's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M12 is turning at full speed. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M12 remains deenergized.
C004D	Power Supply Unit Cooling Fan Motor 3 M18's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M18 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M18 remains deenergized.
C004E	• Power Supply Unit Cooling Fan Motor 1 M15's failure to turn • Power Supply Unit Cooling Fan Motor 2 M16's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M15 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M15 remains deenergized. • The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M16 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M16 remains deenergized.

Code	Description	Detection Timing
C0072	Main Hopper Toner Replenishing Motor M9's failure to turn	• Toner Bottle Home Position Sensor PC4 is not unblocked ([H]) even after the lapse of 5 sec. after M9 has been energized. • PC4 is not blocked ([L]) even after the lapse of 10 sec. after M9 has been energized and PC4 has been unblocked ([H]). • M9 is deenergized and PC4 is unblocked ([H]) even after the lapse of 2 sec. after M9 has been deenergized.
C0090	Developing Unit Drive Motor M1's failure to turn	• The Lock signal remains HIGH for a continuous 1.5-sec. or more period while M1 remains energized. • The Lock signal remains LOW for a continuous 1.5-sec. or more period while M1 remains deenergized.

C01** Corona malfunctions

Code	Description	Detection Timing
C0100	• PC Drum Charge Comb Cleaning Motor M7's failure to turn • Faulty Drum Comb Cleaning Home Position Sensor PC16	• PC16 is not unblocked ([H]) even after the lapse of 7 sec. after M7 has started turning forward. • PC16 is not blocked ([L]) even after the lapse of 20 sec. after M7 has started turning backward.
C0110	• Image Transfer/Paper Separator Wire Cleaning Motor M8's failure to turn • Faulty Transfer/Separator Wire Cleaning Home Position Sensor PC17	• PC17 is not unblocked ([H]) even after the lapse of 7 sec. after M8 has started turning forward. • PC17 is not blocked ([L]) even after the lapse of 20 sec. after M8 has started turning backward.

C02** Corona malfunctions

Code	Description	Detection Timing
C0200	PC Drum Charge Corona leak detected	The Drum Charge SCD signal is output for a continuous 0.3-sec. or more period with the PC Drum Charge Corona or grid ON.
C0210	Image Transfer Corona leak detected	The Image Transfer SCD signal is output for a continuous 0.3-sec. or more period with the Image Transfer Corona ON.
C0220	Developing bias leak detected	The developing bias SCD signal is output for a continuous 0.3-sec. or more period with the developing bias ON.
C0230	Paper Separator Corona leak detected	The Paper Separator SCD signal is output for a continuous 0.3-sec. or more period with the Paper Separator Corona ON.

C04** Exposure Lamp malfunctions
C14A* Exposure Lamp Heater malfunctions

Code	Description	Detection Timing
C0400	Exposure Lamp FL1's failure to turn ON	<When the light intensity is adjusted> The CCD read data does not exceed the specified level when the peak is detected of the intensity of light after the lapse of, or within, 1 min. after FL1 has turned ON. <Normally> The CCD read data does not exceed the specified level 450 msec. after FL1 has turned ON.
C0420	Exposure Lamp FL1 turning ON at abnormal timing	<When the light intensity is adjusted> The adjusted value for the intensity of light remains at the lower limit (48%) and the CCD output level is at the saturation level even after the lapse of 2 sec. or more after FL1 has turned ON.
C14A0	Defective Exposure Lamp Heater UN13 (during warming-up)	The temperature does not reach 60°C within 150 sec. after UN13 has been turned ON.
C14A1	Defective Exposure Lamp Heater UN13 (abnormally low temperature)	The temperature remains at 40°C or below for a continuous 2-sec. or more period after the copier has completed warming up.
C14A2	Defective Exposure Lamp Heater UN13 (abnormally high temperature)	The temperature remains at 110°C or higher for a continuous 2-sec. or more period after the copier has completed warming up.
C14A3	IR warming-up failure	<When the light intensity is adjusted> A Temperature-Under-Control signal is not received from the engine within 195 sec. after FL1 has turned ON.

C05** Fusing Unit malfunctions

Code	Description	Detection Timing
C0500	Warming-up failure (defective Upper Fusing Roller Heater Lamp)	During warming-up, the surface temperature of the Upper Fusing Roller does not reach: • 90°C within 180 sec. from room temperature • 140°C within 180 sec. after it has reached 90°C • 170°C within 120 sec. after it has reached 140°C • The set temperature within 120 sec. after it has reached 170°C.
C0510	Abnormally low fusing temperature	• The surface temperature of the Upper Fusing Roller remains 140°C or less for a continuous 2-sec. or more period after the copier has warmed up. • The surface temperature of the Lower Fusing Roller remains 80°C or less for a continuous 2-sec. or more period after its temperature has reached the set level.
C0520	Abnormally high fusing temperature	• The surface temperature of the Upper Fusing Roller remains 220°C or more for a continuous 2-sec. or more period after the copier has warmed up. • The surface temperature of the Lower Fusing Roller remains 190°C or more for a continuous 2-sec. or more period after its temperature has reached the set level.
C0540	Fusing Roller Thermistor loading failure	The Thermistor Set signal remains HIGH for a continuous 4-sec. or more period.
C0550	Hard protect detected	The Fusing Hard Protect signal remains LOW for a continuous 20-msec. period.

C06** Optical Section malfunctions

Code	Description	Detection Timing
C0600	Scanner Motor M31 malfunction	Encoder pulses are not input to SCP Board PWB-IC at 50-msec. intervals while M31 is turning.
C0602	Cable unwound	Scanner Reference Position Sensor PC55 is not blocked ([H]) despite the fact that the M31 encoder pulse count represents that the Scanner is at a position 5 mm or more to the rear (to the right as viewed from the front) from its home position.
C0650	SHOME signal error	Scanner Reference Position Sensor PC55 is blocked ([L]) when the M31 encoder pulse count is a value that is equivalent to the Scanner at a position 12 mm before its home position.

C09** Paper Take-Up Section malfunctions

Code	Description	Detection Timing
C0910	2nd Drawer Lift-Up failure	<Metric Areas> • 2nd Drawer Paper Lift-Up Sensor PC41 is not blocked ([L]) even after the lapse of 5 sec. after 2nd Drawer Lift-Up Motor M25 has started turning. • PC41 is not blocked ([L]) even when 2nd Drawer Lift-Up Motor Pulse Sensor PC26 detects 150 HIGH-going and LOW-going edges after M25 has started turning. <Inch Areas> • 2nd Drawer Paper Lift-Up Sensor PC41 is not blocked ([L]) even after the lapse of 5 sec. after 2nd Drawer Lift-Up Motor M25 has started turning forward (for upward motion). • PC41 is not blocked ([L]) even when 2nd Drawer Lift-Up Motor Pulse Sensor PC26 detects 150 HIGH-going and LOW-going edges after M25 has started turning forward (for upward motion). • 2nd Drawer Lower Position Sensor PC19 is not blocked ([L]) even after the lapse of 5 sec. after M25 has started turning backward (for downward motion). • PC19 is not blocked ([L]) even when PC26 detects 150 HIGH-going and LOW-going edges after M25 has started turning backward (for downward motion). • PC19 is not unblocked ([H]) even after the lapse of 1.5 sec. after it has been blocked ([L]) while M25 is turning backward (for downward motion). • PC19 is not blocked ([L]) even after the lapse of 5 sec. while M25 is turning forward (for upward motion) after the drawer has been unlocked. • PC19 is not unblocked ([H]) even after the lapse of 5 sec. after it has been blocked ([L]) while M25 is turning forward (for upward motion) after the drawer has been unlocked.
C0911 <Inch Areas Only>	2nd Drawer lock release failure	The 2nd Drawer is not pushed out even after the lapse of 10 sec. after PC19 has been unblocked ([H]) while M25 is turning backward (for downward motion).

Code	Description	Detection Timing
C0914	2nd Drawer Lift-Up Motor M25's failure to turn	<Metric Areas> • PC26 detects no HIGH-going or LOW-going edges even after the lapse of 500 msec. after M25 has started turning. <Inch Areas> • PC26 detects no HIGH-going or LOW-going edges even after the lapse of 500 msec. after M25 has started turning forward (for upward motion) or backward (for downward motion).
C0920	1st Drawer Lift-Up failure	<Metric Areas> • 1st Drawer Paper Lift-Up Sensor PC40 is not blocked ([L]) even after the lapse of 5 sec. after 1st Drawer Lift-Up Motor M24 has started turning. • PC40 is not blocked ([L]) even when 1st Drawer Lift-Up Motor Pulse Sensor PC25 detects 150 HIGH-going and LOW-going edges after M24 has started turning. <Inch Areas> • 1st Drawer Paper Lift-Up Sensor PC40 is not blocked ([L]) even after the lapse of 5 sec. after 1st Drawer Lift-Up Motor M24 has started turning forward (for upward motion). • PC40 is not blocked ([L]) even when 1st Drawer Lift-Up Motor Pulse Sensor PC25 detects 150 HIGH-going and LOW-going edges after M24 has started turning forward (for upward motion). • 1st Drawer Lower Position Sensor PC18 is not blocked ([L]) even after the lapse of 5 sec. after M24 has started turning backward (for downward motion). • PC18 is not blocked ([L]) even when PC25 detects 150 HIGH-going and LOW-going edges after M24 has started turning backward (for downward motion). • PC18 is not unblocked ([H]) even after the lapse of 1.5 sec. after it has been blocked ([L]) while M24 is turning backward (for downward motion). • PC18 is not blocked ([L]) even after the lapse of 5 sec. while M24 is turning forward (for upward motion) after the drawer has been unlocked. • PC18 is not unblocked ([H]) even after the lapse of 5 sec. after it has been blocked ([L]) while M24 is turning forward (for upward motion) after the drawer has been unlocked.
C0921 <Inch Areas Only>	1st Drawer lock release failure	The 1st Drawer is not pushed out even after the lapse of 10 sec. after PC18 has been unblocked ([H]) while M24 is turning backward (for downward motion).
C0924	1st Drawer Lift-Up Motor M24's failure to turn	<Metric Areas> PC25 detects no HIGH-going or LOW-going edges even after the lapse of 500 msec. after M24 has started turning. <Inch Areas> PC25 detects no HIGH-going or LOW-going edges even after the lapse of 500 msec. after M24 has started turning forward (for upward motion) or backward (for downward motion).

Code	Description	Detection Timing
C0990	3rd Drawer lift-up failure	• 3rd Drawer Paper Lift-Up Sensor PC42 is not blocked ([L]) even when 3rd Drawer Elevator Motor Pulse Sensor PC29 has detected 400 HIGH-going and LOW-going edges after 3rd Drawer Elevator Motor M28 has started turning forward (for upward motion); or, PC42 is not blocked ([L]) even after the lapse of 10 sec. after M28 has started turning forward. • PC42 is not blocked ([L]) even after the lapse of 3 sec. after 3rd Drawer Paper Empty Sensor (PC50) has been blocked ([L]) while M28 is turning forward (for upward motion). • Either 3rd Drawer Lower Position Sensor PC20 or 3rd Drawer Overrun Detecting Sensor PC21 is not unblocked ([H]) even after 60 edges are counted after M28 has started turning forward (for upward motion). • PC20 is not blocked ([L]) even after 400 edges are counted after M28 has started turning backward (for downward motion); or, PC21 is not blocked ([L]) even after the lapse of 10 sec. after M28 has started turning backward. • PC21 is not blocked ([L]) even after the lapse of 3 sec. after PC20 has been blocked ([L]) while M28 is turning backward (for downward motion). • PC42 is not unblocked ([H]) even after 40 edges are counted after M28 has started turning backward (for downward motion). • PC21 is not blocked ([L]) when PC20 is blocked ([L]) while M28 is turning forward (for upward motion) or backward (for downward motion).
C0994	3rd Drawer Elevator Motor M28's failure to turn	3rd Drawer Elevator Motor Pulse Sensor PC29 detects no HIGH-going or LOW-going edges even after the lapse of 500 msec. after M28 has started turning forward (for upward motion) or backward (for downward motion).
C0996	3rd Drawer lock release failure	The 3rd Drawer is not pushed out even after the lapse of 10 sec. after three repeated cycles of keeping 3rd Drawer Lock Solenoid SL6 energized for 500 msec., an attempt of pushing the 3rd Drawer out.
C0997	3rd Drawer Shift Gate motion failure	• The input to 3rd Drawer Shift Gate Position Sensor PC52 remains LOW even after the lapse of 2 sec. after 3rd Drawer Shift Gate Motor M30 has been energized with a LOW input to PC52. • The input to PC52 remains HIGH even after the lapse of 2 sec. after M30 has been energized with a HIGH input to PC52.

Code	Description	Detection Timing
C0998	Shifter transfer failure	• 3rd Drawer Shifter Return Position Sensor PC23 is not blocked ([L]) even when 3rd Drawer Shift Motor Pulse Sensor PC30 detects 400 HIGH-going and LOW-going edges after 3rd Drawer Shift Motor M29 has started turning forward (for rightward motion); or, PC23 is not blocked ([L]) even after the lapse of 10 sec. after M29 has started turning forward. • 3rd Drawer Shifter Home Position Sensor PC22 is not unblocked ([H]) even when 40 edges are counted after M29 has started turning forward (for rightward motion). • PC22 is not blocked ([L]) even when 400 edges are counted after M29 has started turning backward (for leftward motion); or, PC22 is not blocked ([L]) even after the lapse of 10 sec. after a return motion has been started. • PC23 is not unblocked ([H]) even when 40 edges are counted after M29 has started turning backward (for leftward motion).
C099C	3rd Drawer Shift Motor M29's failure to turn	PC30 detects no HIGH-going or LOW-going edges even after the lapse of 500 msec. after M29 has started turning forward (for rightward motion) or backward (for leftward motion).
C09C0	Elevator ascent/Descent failure	See the option service manual.

C0B0* Transport drive malfunctions

Code	Description	Detection Timing
C0B00	Transport Motor M1's failure to turn	*See the option service manual.
C0B02	Transport Motor M1's turning at abnormal timing	
C0B03	Elevator Tray Exit Motor M8's failure to turn	
C0B04	Elevator Tray Exit Motor M8 turning at abnormal timing	

C0B2* Stapling Unit drive malfunctions

Code	Description	Detection Timing
C0B20	Stapling Unit CD Motor M16's failure to turn	*See the option service manual.
C0B21	Stapling Unit CD Motor M16's failure to turn	
C0B24	Stapling Unit CD Motor M16's failure to turn	

C0B3* Paper aligning mechanism malfunctions

Code	Description	Detection Timing
C0B30	CD Aligning Motor M6's failure to turn	*See the option service manual.
C0B31	CD Aligning Motor M6's failure to turn	
C0B34	FD Aligning Motor M5's failure to turn	
C0B35	FD Aligning Motor M5's failure to turn	
C0B36	FD Aligning Motor M5's failure to turn	

C0B4* Copy stack transport mechanism malfunctions

Code	Description	Detection Timing
C0B48	Copy Set Clamp Motor 1 M3's failure to turn	*See the option service manual.
C0B49	Copy Set Clamp Motor 1 M3's failure to turn	
C0B4A	Copy Set Clamp Motor 2 M4's failure to turn	
C0B4B	Copy Set Clamp Motor 2 M4's failure to turn	
C0B4F	FD Stopper Motor M13's failure to turn	

C0B5* Stapling drive malfunctions

Code	Description	Detection Timing
C0B50	Stapling Motor M15's failure to turn	*See the option service manual.
C0B51	Stapling Motor M15's failure to turn	

C0B7* Hole punching malfunctions

Code	Description	Detection Timing
C0B73	Punch Motor M10's failure to turn	*See the option service manual.
C0B74	Punch Motor M10 turning at abnormal timing	

C0BA* Elevator malfunctions

Code	Description	Detection Timing
C0BA0	Elevator Motor M2's failure to turn	*See the option service manual.
C0BA1	Elevator Motor M2's failure to turn	
C0BA8	Elevator Tray Pitch Motor M9's failure to turn	

C0BC∗ Paper folding malfunctions

Code	Description	Detection Timing
C0BC0	1st Crease Stopper Motor M12's failure to turn	∗See the option service manual.
C0BC1	1st Crease Stopper Motor M12's failure to turn	
C0BC2	Paper Crease Motor M11's failure to turn	
C0BC3	Paper Crease Motor M11 turning at abnormal timing	

C0BF∗ Control system malfunctions

Code	Description	Detection Timing
C0BF0	Control failure	∗See the option service manual.

C0E∗∗ Erase lamp malfunctions

Code	Description	Detection Timing
C0E00	Main Erase Lamp LA1's failure to turn ON	• The LA1 Malfunction signal remains LOW for a continuous 1-sec. period while LA1 remains OFF. • The LA1 Malfunction signal remains HIGH for a continuous 1-sec. period while LA1 remains ON.

C0F∗∗ Sensor malfunctions

Code	Description	Detection Timing
C0F24	AIDC Sensor UN6 contamination correction failure	The UN6 output voltage does not fall within the range of 0.9V to 1.1V even after the contamination correction and variation adjustment.
C0F32	ATDC Sensor UN4 failure	• The UN4 output voltage remains 0.2V or less, or 4.5V or more, for a continuous 3-sec. period after Developing Unit Drive Motor M1 has been energized. • The UN4 output voltage does not fall within the range of 2.45V to 2.55V during an F8 operation.
C0F33	Abnormally low T/C as detected by ATDC Sensor UN4	A T/C of 2.5% or less (ATDC Sensor output being 3.2V or more) is detected.
C0F34	T/C recovery failure as detected by ATDC Sensor UN4	A toner replenishing sequence does not bring T/C to a normal level within 3 min. after a T/C of 3% or less (ATDC Sensor output being 2.86V or more) has been detected.

C10**~C12**

Code	Description
C10** C11**	Failure in Memory Board (ASIC, IC, etc.)
C12**	Defective Memory Board (control system)
C12C*	Hard Disk Drive failure

C13** Printer Engine malfunctions

Code	Description	Detection Timing
C1300	Polygon Motor M4's failure to turn	• A LOW Lock signal is not detected within 5 to 20 sec. after M4 has been energized at 600 dpi; then, a LOW Lock signal is not detected within 5 to 20 sec. after the resolution has been switched to 400 dpi. • A LOW Lock signal is not detected for 1 to 20 sec. at selection of the resolution. • The Lock signal remains HIGH for a continuous 3-sec. or more period while M4 remains energized.
C1326	Report Answer is not returned	No answer is received within 1.5 sec. to a report transmitted by the engine.
C1330	VD signal failure	A LOW VD signal is not detected even after the lapse of 60 sec. after an IDREQ signal has been output.
C1334	No print command received for 1-sided copies stored in Duplex	No print commands are received for 1-sided copies to be taken up from the Duplex Unit.
C133B	Normal communication data not received from FN for 250 msec.	Normal communication data is not received from the FN for 250 msec.
C13F0	400 dpi SOS detection failure	• An SOS signal is not detected even after the lapse of a given period of time (5 to 5.8 sec.) after Polygon Motor M4 has been energized at 400 dpi. • Either an ST21 signal or ST22 signal remains HIGH for a continuous 50-msec. period while the LD is emitting light for 400 dpi.
C13F1	600 dpi SOS detection failure	An SOS signal is not detected even after the lapse of a given period of time (5 to 5.8 sec.) after Polygon Motor M4 has been energized at 600 dpi.
C13F2	Universal Tray adjustment failure MAX	A CD size of 247 mm or less is detected when the Function operation is run with the maximum FD width input.
C13F3	Universal Tray adjustment failure MIN	A CD size of 190 mm or more is detected when the Function operation is run with the minimum FD width input.
C13F4	Optical System out-of-adjustment	On the Registration (CD) screen available from Adjust, the total value of the settings made of one paper source, Duplex, and 600 dpi is 10 or more.

C14** Image Reader malfunctions

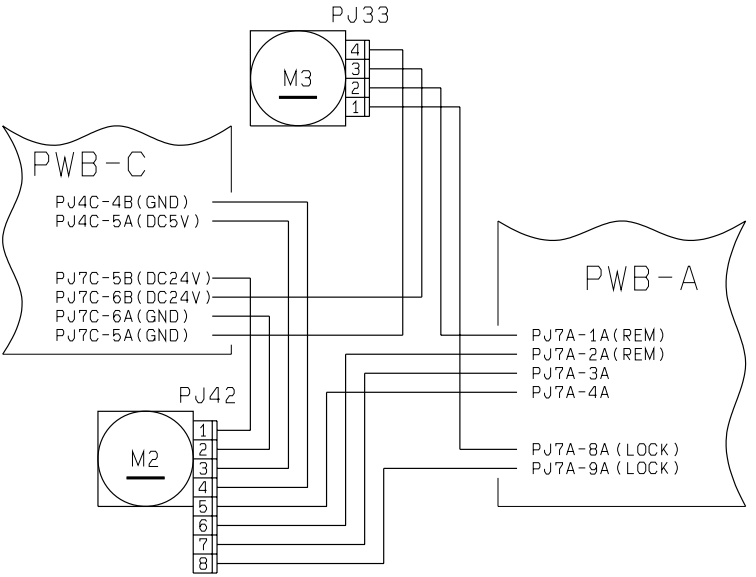
Code	Description	Code	Description
C1401	IR main routine time over	C1402	IR illegal interrupt vector occurred
C1410	IR watchdog	C1426	Communications error 2 reception buffer full
C1428	Communications error 2 transmission buffer full	C1429	Communications error 3 transmission buffer full
C142A	Communications error 4 transmission hard error	C1430	H. Sync fault
C143E	Pick-Up Motor malfunction (EDH)	C1440	Gain adjustment failure
C1441	CCD failure (clamp adjustment failure)	C1450	Sequence trouble timeout
C1461	Serial GA1 fault	C1462	Serial GA2 fault
C1468	Hardware trouble (EEPROM 1)	C1469	Hardware trouble (EEPROM 2)
C1470	Module-to-module communication CCM-EVM	C1471	Module-to-module communication EVM-SQM
C1472	Module-to-module communication EVM-AMM	C1499	Cooling Fan malfunction
C14F2	Filter trouble		

4-2. Troubleshooting Procedures by Malfunction Code

* If a malfunction code is shown on the Touch Panel, reset the malfunction and then start the relevant troubleshooting procedure.

1) C0000 : Fusing Motor M3's Failure to Turn
   C0010 : PC Drum Drive Motor M2's Failure to Turn

Relevant Electrical Parts	
Fusing Motor M3	Master Board PWB-A
PC Drum Drive Motor M2	Power Supply Board PWB-C



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◆C0000

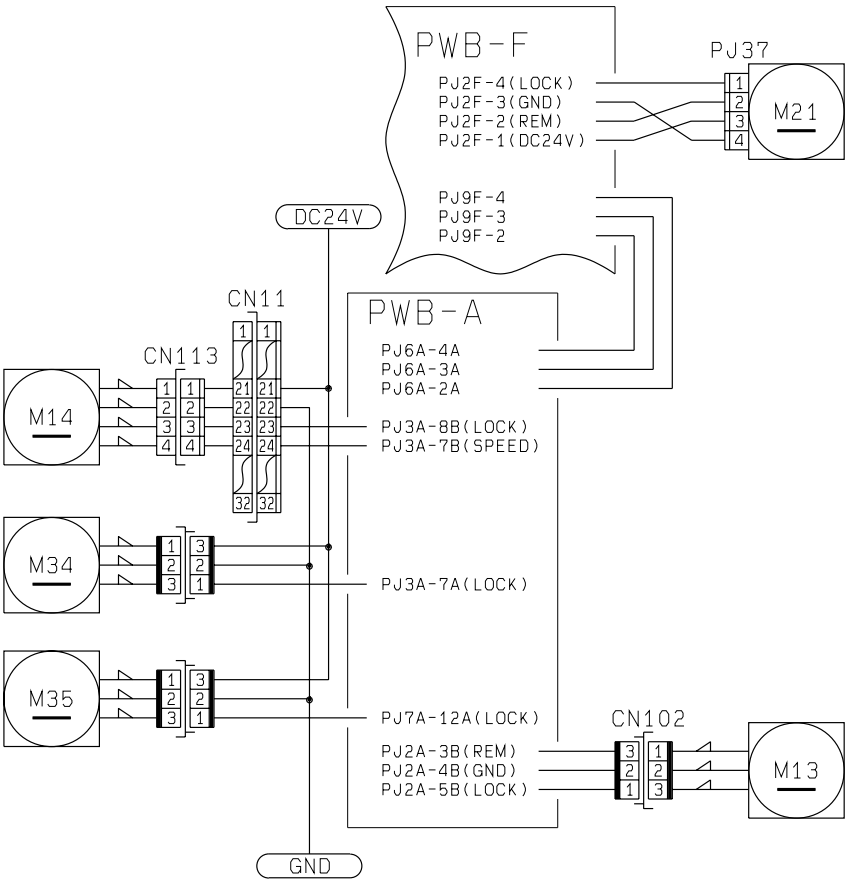
Step	Check Item	Result	Action
1	Check M3 for operation. Does the voltage across PJ7A-1A on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	NO	Change PWB-A.
2	Does the voltage across PJ7A-8A on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	NO	Check gears for overload and, if they are okay, change M3.
3	Is the voltage across PJ7C-6B on PWB-C and GND DC24V?	YES	Change PWB-A or M3.
		NO	Change PWB-C.

◆C0010

Step	Check Item	Result	Action
1	Check M2 for operation. Does the voltage across PJ7A-2A on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	NO	Change PWB-A.
2	Does the voltage across PJ7A-9A on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	NO	Check gears for overload and, if they are okay, change M2.
3	Is the voltage across PJ4C-5A on PWB-C and GND DC5V? Is the voltage across PJ7C-5B on PWB-C and GND DC24V?	YES	Change PWB-A or M2.
		NO	Change PWB-C.

2) C0020 : Paper Take-Up Motor M21's Failure to Turn
C0040 : Suction Fan Motor M14's Failure to Turn
C0042 : Toner Suction Fan Motor M13's Failure to Turn
C0048 : Hard Disk Drive Cooling Fan Motor 1 M34's Failure to Turn, Hard Disk Drive Cooling Fan Motor 2 M35's Failure to Turn

Relevant Electrical Parts	
Paper Take-Up Motor M21	Master Board PWB-A
Suction Fan Motor M14	Drawer S/P Board PWB-F
Toner Suction Fan Motor M13	
Hard Disk Drive Cooling Fan Motor 1 M34	
Hard Disk Drive Cooling Fan Motor 2 M35	



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◆C0020

Step	Check Item	Result	Action
1	Check M21 for operation. Does the voltage across PJ2F-2 on PWB-F and GND change from DC5V to DC0V when the Start key is pressed?	NO	Change PWB-A or PWB-F.
2	Does the voltage across PJ2F-4 on PWB-F and GND change from DC5V to DC0V when the Start key is pressed?	YES	Change PWB-A or PWB-F.
		NO	Check gears for overload and, if they are okay, change M21.

◆C0040

Step	Check Item	Result	Action
1	Check M14 for operation. Does the voltage across PJ3A-8B on PWB-A and GND change from DC5V to DC0V when the malfunction is reset?	YES	Change PWB-A.
		NO	Check gears for overload and, if they are okay, change M14.

◆C0042

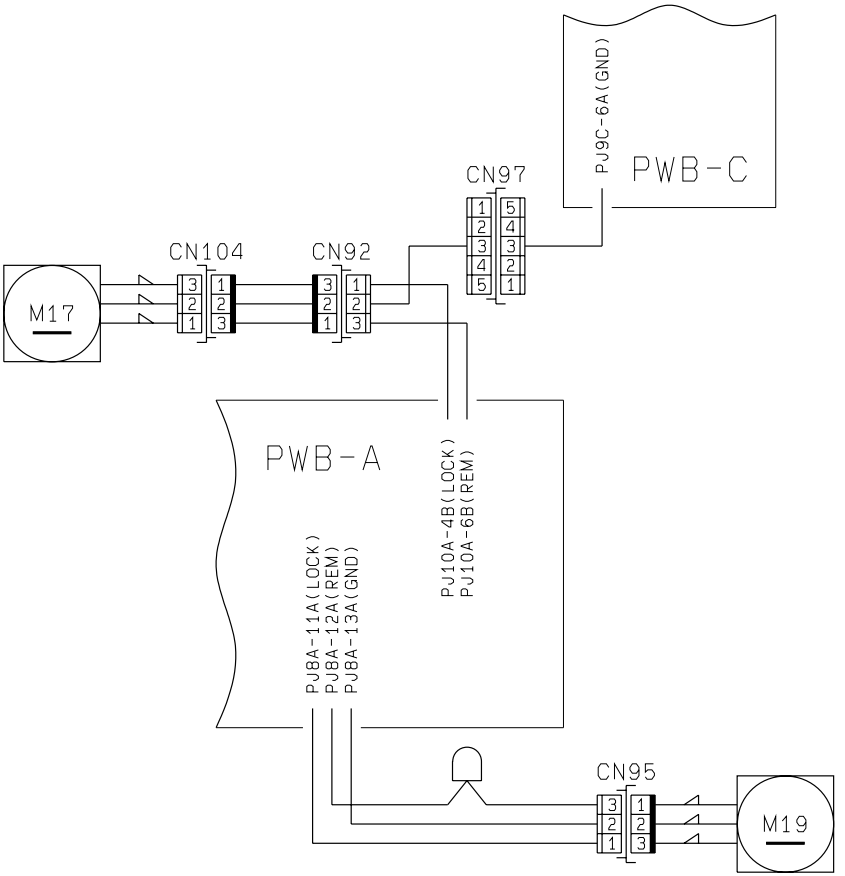
Step	Check Item	Result	Action
1	Check M13 for operation. Does the voltage across PJ2A-3B on PWB-A and GND change from DC0V to DC24V when the Start key is pressed?	NO	Change PWB-A.
2	Does the voltage across PJ2A-5B on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	YES	Change PWB-A.
		NO	Check gears for overload and, if they are okay, change M13.

◆C0048

Step	Check Item	Result	Action
1	Check M34 for operation. Does the voltage across PJ3A-7A on PWB-A and GND change from DC5V to DC0V when the malfunction is reset?	NO	Check gears for overload and, if they are okay, change M34.
2	Check M35 for operation. Does the voltage across PJ7A-12A on PWB-A and GND change from DC5V to DC0V when the malfunction is reset?	YES	Change PWB-A.
		NO	Check gears for overload and, if they are okay, change M35.

3) C0049 : PH Cooling Fan Motor M19's Failure to Turn
C004A: PC Drum Cooling Fan Motor M17's Failure to Turn

Relevant Electrical Parts	
PC Drum Cooling Fan Motor M17	PH Cooling Fan Motor M19 Master Board PWB-A Power Supply Board PWB-C



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◆C0049

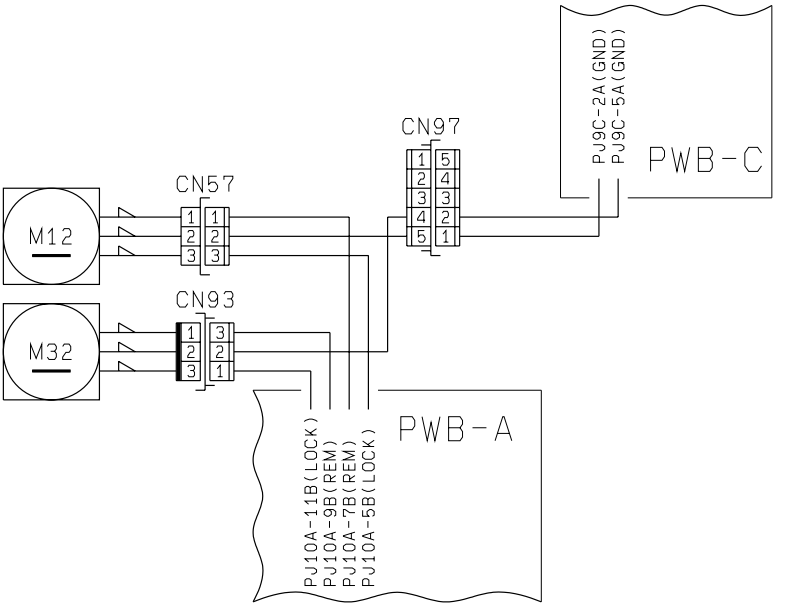
Step	Check Item	Result	Action
1	Check M19 for operation. Does the voltage across PJ8A-12A on PWB-A and GND change from DC0V to DC24V when the Start key is pressed?	NO	Change PWB-A.
2	Does the voltage across PJ8A-11A on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	YES	Change PWB-A.
		NO	Check gears for overload and, if they are okay, change M19.

◆C004A

Step	Check Item	Result	Action
1	Check M17 for operation. Does the voltage across PJ10A-6B on PWB-A and GND change from DC0V to DC24V when the malfunction is reset?	NO	Change PWB-A.
2	Does the voltage across PJ10A-4B on PWB-A and GND change from DC5V to DC0V when the malfunction is reset?	YES	Change PWB-A.
		NO	Check gears for overload and, if they are okay, change M17.

4) C004B: CCD Cooling Fan Motor M32's Failure To Turn
C004C: Ozone Ventilation Fan Motor M12's Failure to Turn

Relevant Electrical Parts	
Ozone Ventilation Fan Motor M12 CCD Cooling Fan Motor M32	Master Board PWB-A Power Supply Board PWB-C



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◆C004B

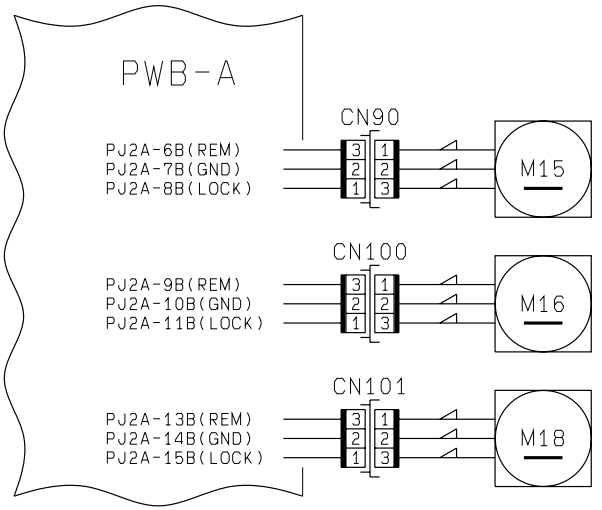
Step	Check Item	Result	Action
1	Check M32 for operation. Does the voltage across PJ10A-9B on PWB-A and GND change from DC0V to DC24V when the malfunction is reset?	NO	Change PWB-A.
2	Does the voltage across PJ10A-11B on PWB-A and GND change from DC5V to DC0V when the malfunction is reset?	YES	Change PWB-A.
		NO	Check gears for overload and, if they are okay, change M17.

◆C004C

Step	Check Item	Result	Action
1	Check M12 for operation. Does the voltage across PJ10A-7B on PWB-A and GND change from about DC16V to DC24V when the Start key is pressed?	NO	Change PWB-A.
2	Does the voltage across PJ10A-5B on PWB-A and GND change from DC5V to DC0V when the malfunction is reset?	YES	Change PWB-A.
		NO	Check gears for overload and, if they are okay, change M12.

5) C004D: Power Supply Unit Cooling Fan Motor 3 M18's Failure to Turn
C004E: Power Supply Unit Cooling Fan Motor 1 M15's Failure to Turn
Power Supply Unit Cooling Fan Motor 2 M16's Failure to Turn

Relevant Electrical Parts	
Power Supply Unit Cooling Fan Motor 3 M18 Power Supply Unit Cooling Fan Motor 2 M16 Power Supply Unit Cooling Fan Motor 1 M15	Master Board PWB-A



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◆C004D

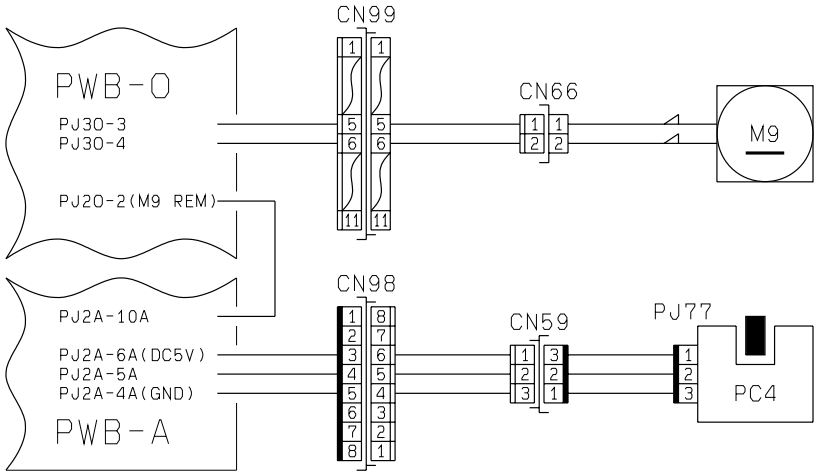
Step	Check Item	Result	Action
1	Check M18 for operation. Does the voltage across PJ2A-13B on PWB-A and GND change from DC0V to DC24V when the malfunction is reset?	NO	Change PWB-A.
2	Does the voltage across PJ2A-15B on PWB-A and GND change from DC5V to DC0V when the malfunction is reset?	YES	Change PWB-A.
		NO	Check gears for overload and, if they are okay, change M18.

◆C004E

Step	Check Item	Result	Action
1	Check M15 for operation. Does the voltage across PJ2A-6B on PWB-A and GND change from DC0V to DC24V when the Start key is pressed?	NO	Change PWB-A.
2	Does the voltage across PJ2A-8B on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	NO	Check gears for overload and, if they are okay, change M15.
3	Check M16 for operation. Does the voltage across PJ2A-9B on PWB-A and GND change from DC0V to DC24V when the Start key is pressed?	NO	Change PWB-A.
4	Does the voltage across PJ2A-11B on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	YES	Change PWB-A.
		NO	Check gears for overload and, if they are okay, change M16.

6) C0072 : Main Hopper Toner Replenishing Motor M9's Failure to Turn

Relevant Electrical Parts	
Main Hopper Toner Replenishing Motor M9 Toner Bottle Home Position Sensor PC4	Master Board PWB-A Toner Replenishing Motor Control Board PWB-O



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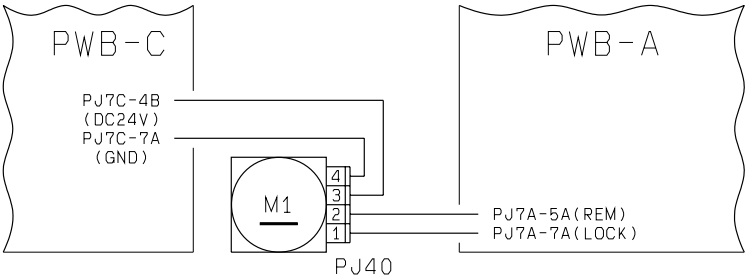
◆C0072

Step	Check Item	Result	Action
1	Manually turn the Toner Bottle a half turn and then close the Upper Front Door. Does the Toner Bottle turn at this time?	NO	Check for overloads and then check step 4.
2	Does the voltage across PJ2A-10A on PWB-A and GND change from DC24V to DC0V when step 1 is performed once again?	NO	Change PWB-A.
3	Does the voltage across PJ30-3 and PJ30-4 on PWB-O change from 0V to AC12V when step 1 is performed once again?	NO	Change PWB-O.
4	Is PC41 fully operational?	YES	Change PWB-A or M9.
	Does the voltage across PJ2A-5A on PWB-A and GND change from DC5V to DC0V when step 1 is performed once again?	NO	Change PC4.

7) C0090 : Developing Unit Drive Motor M1's Failure to Turn

Relevant Electrical Parts	
Developing Unit Drive Motor M1	Master Board PWB-A Power Supply Board PWB-C



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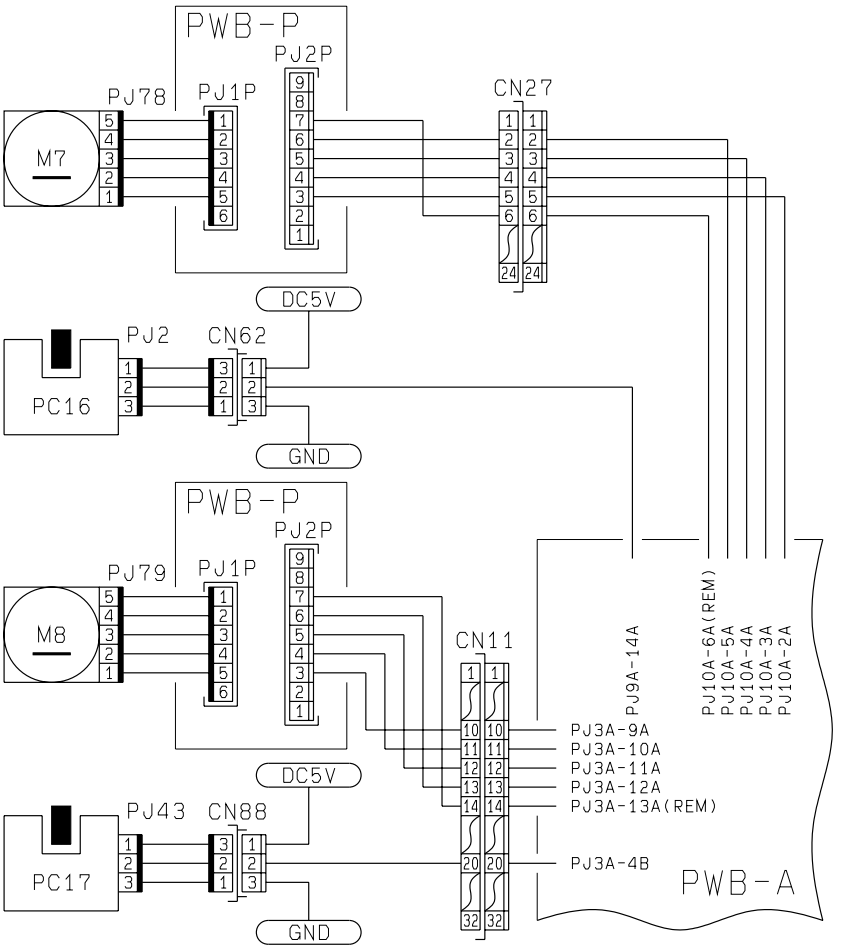
◆C0090

Step	Check Item	Result	Action
1	Check M1 for operation. Does the voltage across PJ7A-5A on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	NO	Change PWB-A.
2	Does the voltage across PJ7A-7A on PWB-A and GND change from DC5V to DC0V when the Start key is pressed?	NO	Check gears for overload and, if they are okay, change M1.
3	Is the voltage across PJ7C-4B on PWB-C and GND DC24V?	YES	Change PWB-A or M1.
		NO	Change PWB-C.

8) C0100 : PC Drum Charge Comb Cleaning Motor M7's Failure to Turn
Defective Drum Comb Cleaning Home Position Sensor PC16
C0110 : Image Transfer/Paper Separator Wire Cleaning Motor M8's Failure to Turn
Defective Transfer/Separator Wire Cleaning Home Position Sensor PC17

Relevant Electrical Parts	
PC Drum Charge Comb Cleaning Motor M7 Drum Comb Cleaning Home Position Sensor PC16 Image Transfer/Paper Separator Wire Cleaning Motor M8	Transfer/Separator Wire Cleaning Home Position Sensor PC17 Master Board PWB-A Wire Cleaning Motor Drive Board PWB-P



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◆C0100

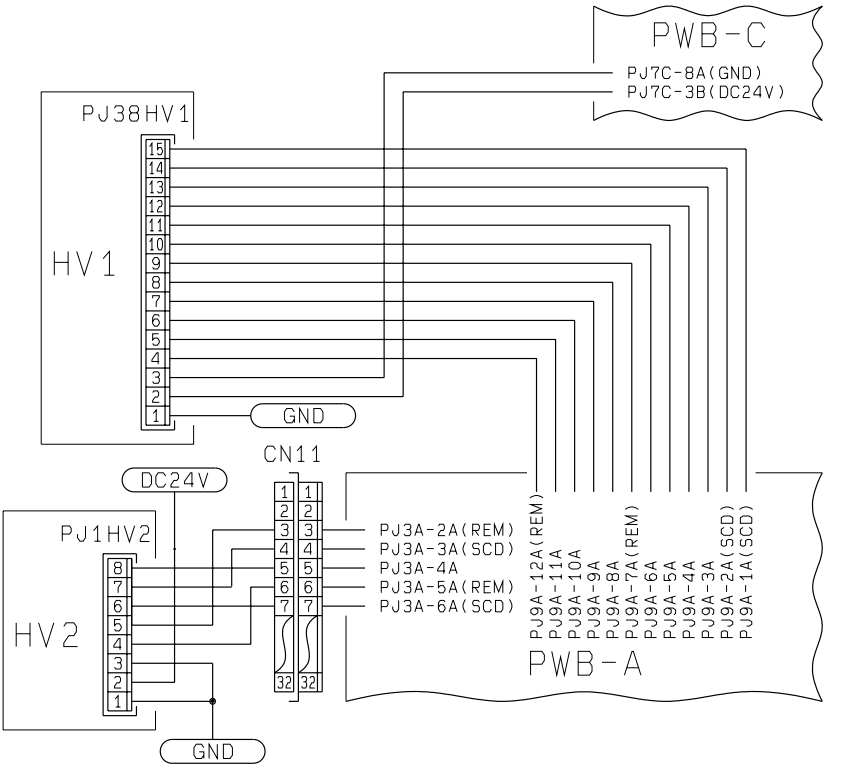
Step	Check Item	Result	Action
1	Check the “I/O Check” screen to see if PC16 is operational. Manually turn the screw shaft to bring the cleaner to its home position. Is the "Clean (Charge)" input signal “1” when the PC Unit is slid into the copier? Is the input signal “0” when the PC Unit is slid into the copier with the cleaner located at a position other than home?	NO	Check the PC16 actuator for operation and, if it is okay, change PC16.
2	Does the cleaner holder move smoothly when the screw shaft is turned manually?	NO	Check for burrs on the housing, a deformed screw, and M7 gear.
3	Check M7 for operation. Does the voltage across PJ10A-6A on PWB-A and GND remain DC5V for approx. 1 sec. when the Power Switch is turned ON and then change to DC0V?	YES	Change PWB-P or M7.
		NO	Change PWB-A.

◆C0110

Step	Check Item	Result	Action
1	Check the “I/O Check” screen to see if PC17 is operational. Manually turn the screw shaft to bring the cleaner to its home position. Is the "Clean (Trance.)" input signal “1” when the Transport Tray is slid into the copier and the M4 lock lever is raised? Is the input signal “0” when the Transport Tray is slid into the copier and the lock lever is raised with the cleaner located at a position other than home?	NO	Check the PC17 actuator for operation and, if it is okay, change PC17.
2	Does the cleaner holder move smoothly when the screw shaft is turned manually?	NO	Check for burrs on the housing, a deformed screw, and M8 gear.
3	Check M8 for operation. Does the voltage across PJ3A-13A on PWB-A and GND remain DC5V for approx. 1 sec. when the Power Switch is turned ON and then change to DC0V?	YES	Change PWB-P or M8.
		NO	Change PWB-A.

9) C0200 : PC Drum Charge Corona Leak Detected
C0210 : Image Transfer Corona Leak Detected
C0220 : Developing Bias Leak Detected
C0230 : Paper Separator Corona Leak Detected

Relevant Electrical Parts	
PC Drum Charge/Developing Bias HV HV1	Master Board PWB-A
Image Transfer/Paper Separator HV HV2	Power Supply Board PWB-C



1155C13TAA

◆C0200

Step	Check Item	Result	Action
1	Is the Comb Electrode installed properly?	NO	Install the Comb Electrode properly.
2	Is the Comb Electrode dirty or has it snapped?	YES	Clean or change the Comb Electrode.
3	Is “C0200” shown even when PJ38HV1 is unplugged from HV1?	YES	Change PWB-A.
		NO	Change HV1.

◆C0210, C0230

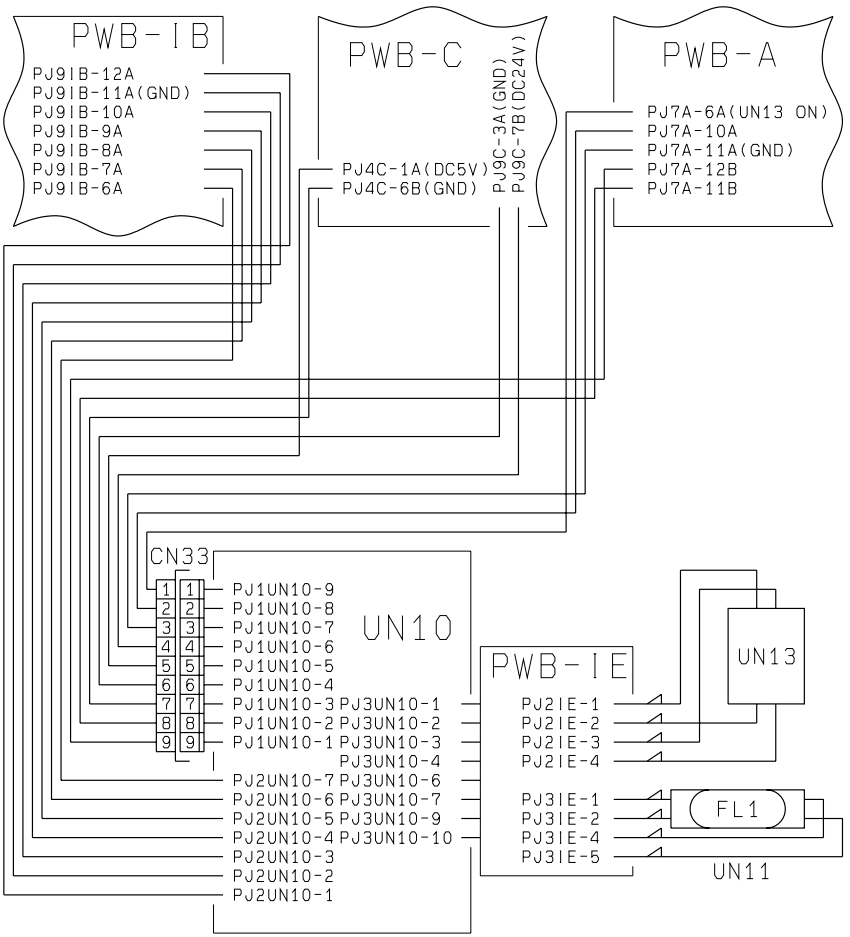
Step	Check Item	Result	Action
1	Is the Image Transfer/Paper Separator Coronas Unit installed properly?	NO	Install the Image Transfer/Paper Separator Coronas Unit properly.
2	Are the Image Transfer/Paper Separator Coronas wires dirty or have they snapped?	YES	Clean or change the corona wires.
3	Is “C0210” or “C0230” shown even when PJ1HV2 is unplugged from HV2?	YES	Change PWB-A.
		NO	Change HV2.

◆C0220

Step	Check Item	Result	Action
1	Is the developing bias contact intact?	NO	Clean or change the developing bias contact.
2	Is "C0220" shown even when PJ38HV1 is unplugged from HV1?	YES	Change PWB-A.
		NO	Change HV1.

10) C0400 : Exposure Lamp FL1's Failure to Turn ON
C0420 : Exposure Lamp FL1 Turning ON at Abnormal Timing
C14A0 : Exposure Lamp Heater UN13 Failure (during Warming-up)
C14A1 : Exposure Lamp Heater UN13 Failure (Abnormally Low Temperature)
C14A2 : Exposure Lamp Heater UN13 Failure (Abnormally High Temperature)
C14A3 : IR Warming-up Failure

Relevant Electrical Parts	
Exposure Lamp FL1	Master Board PWB-A
Exposure Lamp Inverter Board UN10	Power Supply Board PWB-C
Exposure Lamp Holder UN11	Image Processing Board PWB-IB
Exposure Lamp Heater UN13	Lamp Flexible Printed Circuit PWB-IE



1155C14TAB

◆C0400, C0420

Step	Check Item	Result	Action
1	Has Exposure Lamp FL1 blackened?	YES	Change FL1.
2	Does the Exposure Lamp turn ON when "Exp. Lamp Check" of "Function (I.R.)" under "I.R. & EDH Check" available from the Tech. Rep. mode is run?	NO	Check PWB-IE and check step 4 and onward.
3	Does "NG" appear when "Address Adjust" of "Function (I.R.)" under "I.R. & EDH Check" available from the Tech. Rep. mode is run?	YES	Check the optical path to the CCD for possible obstruction.
4	Does "NG" appear when "Scanning Check" of "Function (I.R.)" under "I.R. & EDH Check" available from the Tech. Rep. mode is run?	YES	Change PWB-IB or UN10.
5	Is the voltage across PJ9C-7B on PWB-C and GND DC24V?	YES	Change PWB-A.
		NO	Change PWB-C.

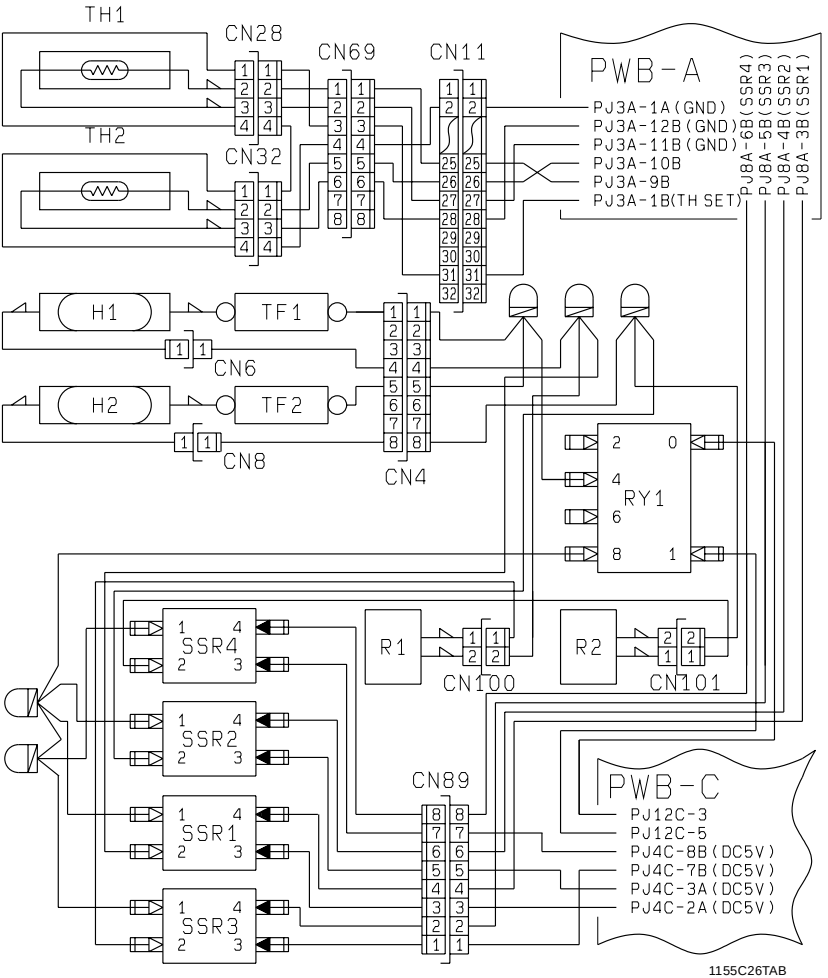
◆C14A0, C14A1, C14A2, C14A3

Step	Check Item	Result	Action
1	Is the resistance across PJ3UN10-1 and PJ3UN10-2 on UN10 about 30 ohms?	NO	Change UN13 or PWB-IE.
2	Does the voltage across PJ7A-6A on PWB-A and GND go LOW when the Power Switch is turned ON?	NO	Change PWB-A.
3	Does the value for "IR Thermistor" shown on the I/O Check screen change when the Power Switch is turned ON?	NO	Change PWB-A or UN10.

11) C0500 : Warming-up Failure
C0510 : Abnormally Low Fusing Temperature
C0520 : Abnormally High Fusing Temperature
C0540 : Fusing Roller Thermistor Loading Failure
C0550 : Hard Protect Detected

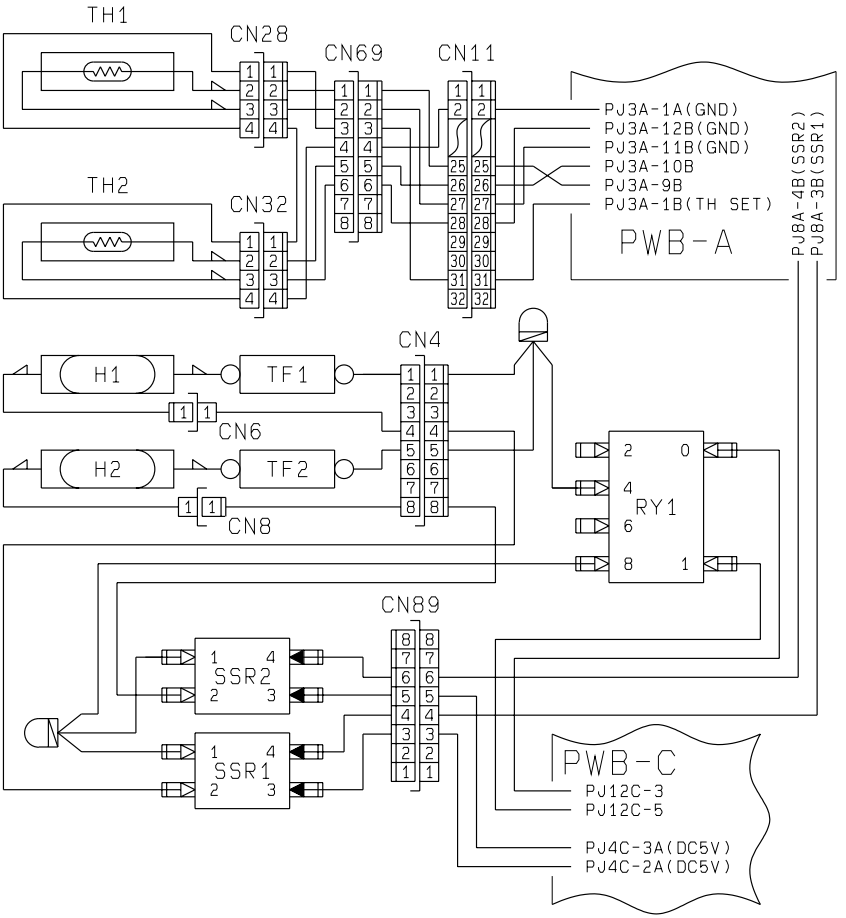
<Metric Areas>

Relevant Electrical Parts	
Upper Fusing Roller Heater Lamp H1	Upper Fusing Heater Lamp SSR1 SSR1
Lower Fusing Roller Heater Lamp H2	Lower Fusing Heater Lamp SSR2 SSR2
Upper Fusing Roller Thermistor TH1	Upper Fusing Heater Lamp SSR3 SSR3
Lower Fusing Roller Thermistor TH2	Lower Fusing Heater Lamp SSR4 SSR4
Upper Fusing Roller Thermal Fuse TF1	Main Relay (RY1)
Lower Fusing Roller Thermal Fuse TF2	Master Board PWB-A
Upper Guide Plate Resistor R1	Power Supply Board PWB-C
Lower Guide Plate Resistor R2	



<Inch Areas>

Relevant Electrical Parts	
Upper Fusing Roller Heater Lamp H1	Lower Fusing Roller Thermal Fuse TF2
Lower Fusing Roller Heater Lamp H2	Upper Fusing Heater Lamp SSR1 SSR1
Upper Fusing Roller Thermistor TH1	Lower Fusing Heater Lamp SSR2 SSR2
Lower Fusing Roller Thermistor TH2	Main Relay (RY1)
Upper Fusing Roller Thermal Fuse TF1	Master Board PWB-A
	Power Supply Board PWB-C



1155C27TAB

◆C0500, C0510

Step	Check Item	Result	Action
1	Remove the Fusing Unit Front Cover and then turn ON the Power Switch. Does H1 turn ON at this time?	NO	Check step 7 and onward.
2	Does H2 turn ON when the malfunction is reset with the surface temperature of the Lower Fusing Roller at 135°C as indicated on "Level History" available from the Tech. Rep. mode?	NO	Check step 8 and onward.
3	Is TH1 or TH2 installed properly?	NO	Correct the installation of TH1 or TH2.
4	Is TH1 or TH2 dirty?	YES	Clean or change TH1 or TH2.
5	Measure the resistance of TH1 (across CN28-2 and 3 on the Fusing Unit end). Is the measurement infinity?	YES	Change TH1.
6	Measure the resistance of TH2 (across CN32-2 and 3 on the Fusing Unit end). Is the measurement infinity?	YES	Change TH2.
7	Does the voltage across PJ8A-3B on PWB-A and GND change from DC5V to DC0V when the Power Switch is turned ON?	NO	Change PWB-A.
8	Does the voltage across PJ8A-4B on PWB-A and GND change from DC5V to DC0V when step 2 is performed again?	NO	Change PWB-A.
9	Unplug CN4 (8P). Is there continuity across CN4-1 and 4 on the Fusing Unit end?	NO	Check H1 or TF1 for continuity.
10	Unplug CN4 (8P). Is there continuity across CN4-5 and 8 on the Fusing Unit end?	NO	Check H2 or TF2 for continuity.
11	Is the voltage across PJ4C-3A on PWB-C and GND, and across PJ4C-2A on PWB-C and GND, DC5V?	YES	Change PWB-A, SSR1 or SSR2.
		NO	Cange PWB-C.

◆C0520

Step	Check Item	Result	Action
1	Does H1 remain ON after the copier has completed warming up? Or, is H2 ON when "Fuser (Lower)" shown on "Level History" available from "Tech. Rep. Mode" is 140°C or more?	NO	Check step 4 and onward.
2	Does the voltage across PJ8A-3B on PWB-A and GND change from DC0V to DC5V after the copier has completed warming up?	NO	Change PWB-A.
3	Is the voltage across PJ8A-4B on PWB-A and GND DC5V when "Fuser (Lower)" shown on "Level History" available from "Tech. Rep. Mode" is 140°C or more?	YES	Change SSR1 or SSR2.
		NO	Change PWB-A.
4	Unplug CN69 (8P). Is the circuit across CN69-1 and 2 on the Fusing Unit end closed?	YES	Change TH1.
5	Unplug CN69 (8P). Is the circuit across CN69-5 and 6 on the Fusing Unit end closed?	YES	Change TH2.
6	Is the voltage across PJ4C-3A on PWB-C and GND, and across PJ4C-2A on PWB-C and GND, DC5V?	YES	Change PWB-A.
		NO	Change PWB-C.

◆C0540

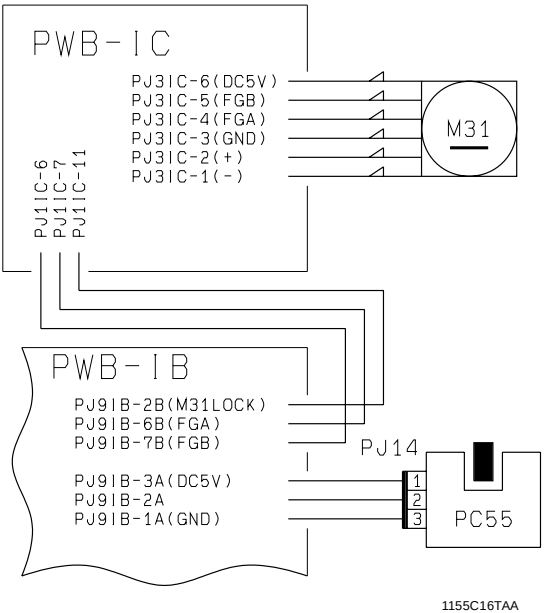
Step	Check Item	Result	Action
1	Check the Thermistor Set signal. Does the value ("0" or "1") for "Thermistor Set" shown on the I/O Check screen change properly when the Transport Tray is slid in and out of the copier?	YES	Change PWB-A.
		NO	Check CN69 (8P), CN28 (4P), CN32 (4P), and CN11 (32P).

◆C0550

Step	Check Item	Result	Action
1	Does "C0550" appear again even after a malfunction has been reset?	YES	Change either PWB-A, Fusing Unit, SSR1, or SSR2.

12) C0600 : Scanner Motor M31 Malfunction
C0602 : Cable Unwound
C0650 : SHOME Signal Error

Relevant Electrical Parts	
Scanner Motor M31	Digital Image Processing Board PWB-IB
Scanner Reference Position Sensor PC55	SCP Board PWB-IC



◆C0600

Step	Check Item	Result	Action
1	Is PJ3IC securely plugged into PWB-IC?	NO	Plug it in securely.
2	Check M31 for operation. Does the voltage across PJ1IC-11 on PWB-IC and GND change from DC5V to DC0V when the malfunction is reset?	NO	Check gears for overload and, if they are okay, change M31 or PWB-IC.
3	Is the voltage across PJ3IC-6 on PWB-IC and GND DC5V?	YES	Change PWB-IB.
		NO	Change PWB-IC.

◆C0602

Step	Check Item	Result	Action
1	Has the cable snapped off, is it unwound or loose, or does a portion of the cable ride over another?	YES	Correct or change the cable.
2	Is PJ3IC plugged properly into PWB-IC?	NO	Plug it in properly.
3	Check M31 for operation. Does the voltage across PJ1IC-11 on PWB-IC and GND change from DC5V to DC0V when the malfunction is reset?	NO	Check gears and belts for overload and, if they are okay, change M31 or PWB-IC.
4	Is the voltage across PJ3IC-6 on PWB-IC and GND DC5V?	NO	Change PWB-IC.
5	Is PJ9IB plugged properly into PWB-IB and PJ14 into PC55?	NO	Plug them in properly.
6	Does the voltage across PJ9IB-2A on PWB-IB and GND change to DC0V when PC55 is blocked?	YES	Change PWB-IB.
		NO	Change PC55.

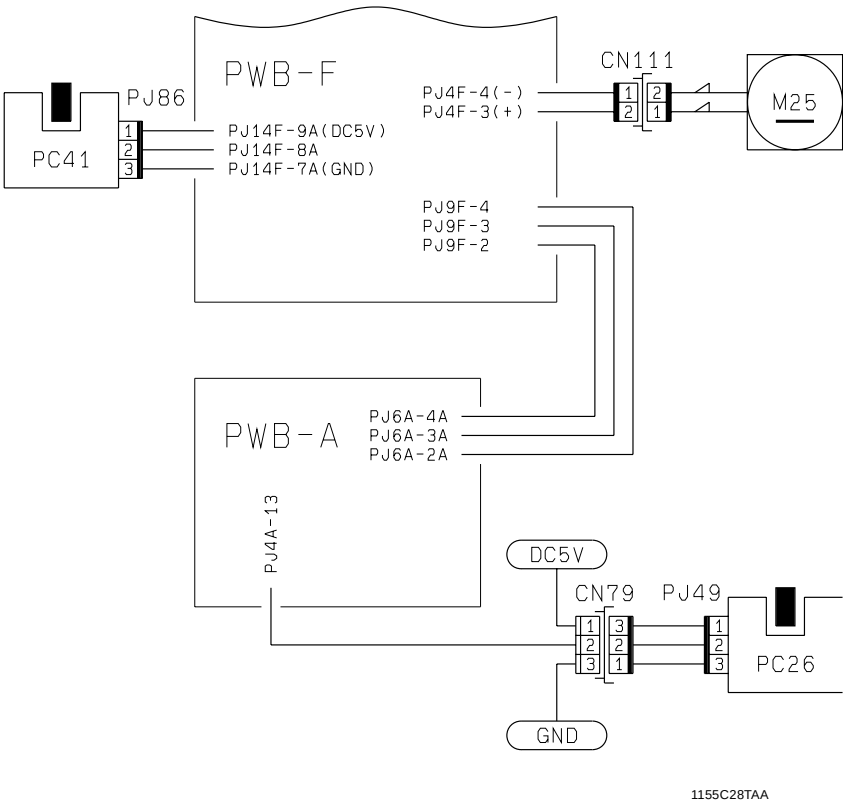
◆C0650

Step	Check Item	Result	Action
1	Has the cable snapped off, is it unwound or loose, or does a portion of the cable ride over another?	YES	Correct or change the cable.
2	Is PJ9IB securely plugged into PWB-IB and PJ14 into PC55?	NO	Plug them in securely.
3	Is the light blocking plate installed properly?	NO	Reinstall.
4	Does the voltage across PJ9IB-2A on PWB-IB and GND change to DC0V when PC55 is unblocked?	YES	Change PWB-IB.
		NO	Change PC55.

13) C0910 : 2nd Drawer Lift-Up Failure
C0911 : 2nd Drawer Lock Release Failure (Inch Areas)
C0914 : 2nd Drawer Lift-Up Motor M25's Failure to Turn

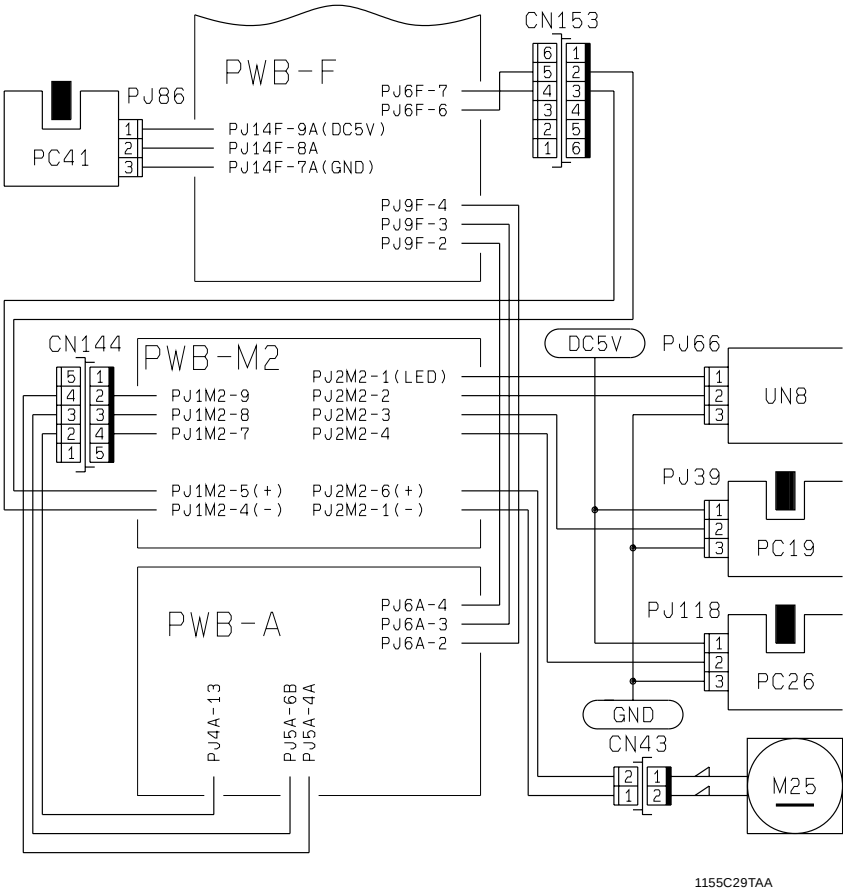
<Metric Areas>

Relevant Electrical Parts	
2nd Drawer Lift-Up Motor M25	Master Board PWB-A
2nd Drawer Paper Lift-Up Sensor PC41	Drawer S/P Board PWB-F
2nd Drawer Lift-Up Motor Pulse Sensor PC26	



<Inch Areas>

Relevant Electrical Parts	
2nd Drawer Lift-Up Motor M25	2nd Drawer Lower Position Sensor PC19
2nd Drawer Paper Lift-Up Sensor PC41	Master Board PWB-A
2nd Drawer Lift-Up Motor Pulse Sensor PC26	Drawer S/P Board PWB-F
2nd Drawer Paper Descent Key UN8	2nd Drawer Flexible Printed Circuit PWB-M2



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<Metric Areas>
◆C0910, C0914

Step	Check Item	Result	Action
1	Does M25 start turning when the 2nd Drawer is slid out and back in?	NO	Check for overloads and then check step 3 and onward.
2	Does the voltage across PJ4F-3 on PWB-F and GND change from DC0V to DC24V when step 1 is performed again?	YES	Check gears for overload and, if they are okay, change M25.
		NO	Change PWB-A or PWB-F.
3	Check PC26 for operation. Does the voltage across PJ4A-13 on PWB-A and GND alternate between DC0V and DC5V when step 1 is performed again?	NO	Check the PC26 pulse disk and, if it is okay, change PC26.
4	Is PC41 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A or PWB-F.
		NO	Check the PC41 actuator and, if it is okay, change PC41.

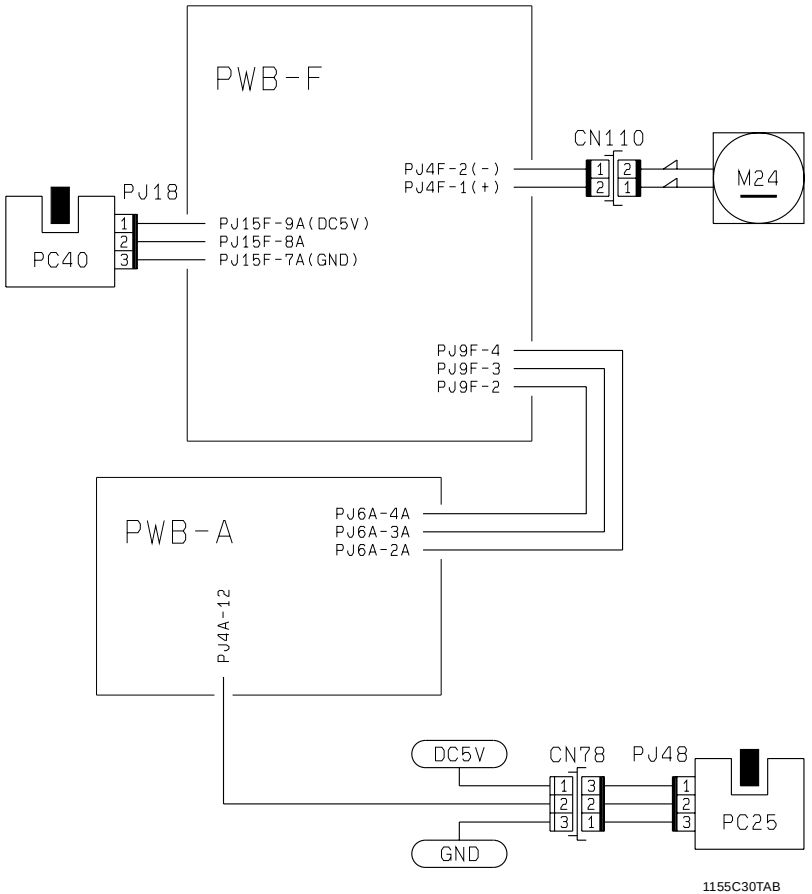
<Inch Areas>
◆C0910, C0911, C0914

Step	Check Item	Result	Action
1	Does M25 start turning when the 2nd Drawer is slid into the copier and UN8 turned ON?	NO	Check for overloads and then check step 3 and onward.
2	Does the voltage across PJ6F-6 on PWB-F and GND change from DC0V to DC24V when step 1 is performed again?	YES	Check gears for overload and, if they are okay, change PWB-M2 or M25.
		NO	Change PWB-A or PWB-F.
3	Is PC41 fully operational? Make the input port check using “I/O Check.”	NO	Check the PC41 actuator and, if it is okay, change PC41.
4	Check PC26 for operation. Does the voltage across PJ4A-13 on PWB-A and GND alternate between DC0V and DC5V when step 1 is performed again?	NO	Check the PC26 pulse disk and, if it is okay, change PC26.
5	Is PC19 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A, PWB-F, or PWB-M2.
		NO	Check the PC19 actuator and, if it is okay, change PC19.

14) C0920 : 1st Drawer Lift-Up Failure
C0921 : 1st Drawer Lock Release Failure (Inch Areas)
C0924 : 1st Drawer Lift-Up Motor M24's Failure to Turn

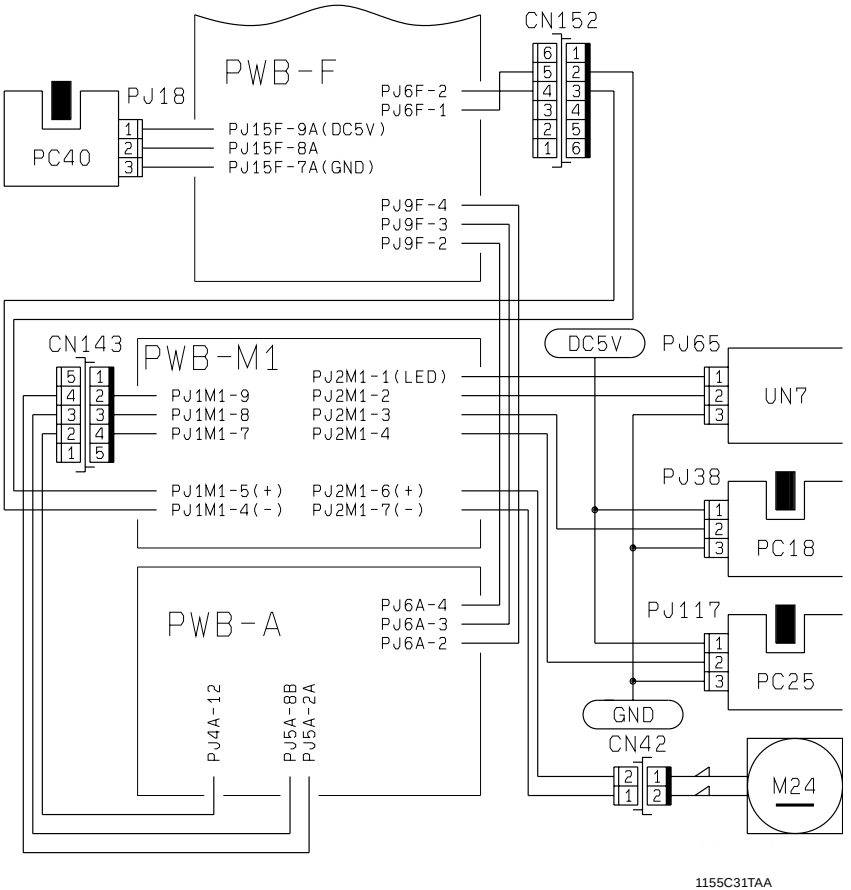
<Metric Areas>

Relevant Electrical Parts	
1st Drawer Lift-Up Motor M24	Master Board PWB-A
1st Drawer Paper Lift-Up Sensor PC40	Drawer S/P Board PWB-F
1st Drawer Lift-Up Motor Pulse Sensor PC25	



<Inch Areas>

Relevant Electrical Parts	
1st Drawer Lift-Up Motor M24	1st Drawer Lower Position Sensor PC18
1st Drawer Paper Lift-Up Sensor PC40	Master Board PWB-A
1st Drawer Lift-Up Motor Pulse Sensor PC25	Drawer S/P Board PWB-F
1st Drawer Paper Descent Key UN7	1st Drawer Flexible Printed Circuit PWB-M1



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<Metric Areas>
◆C0920, C0924

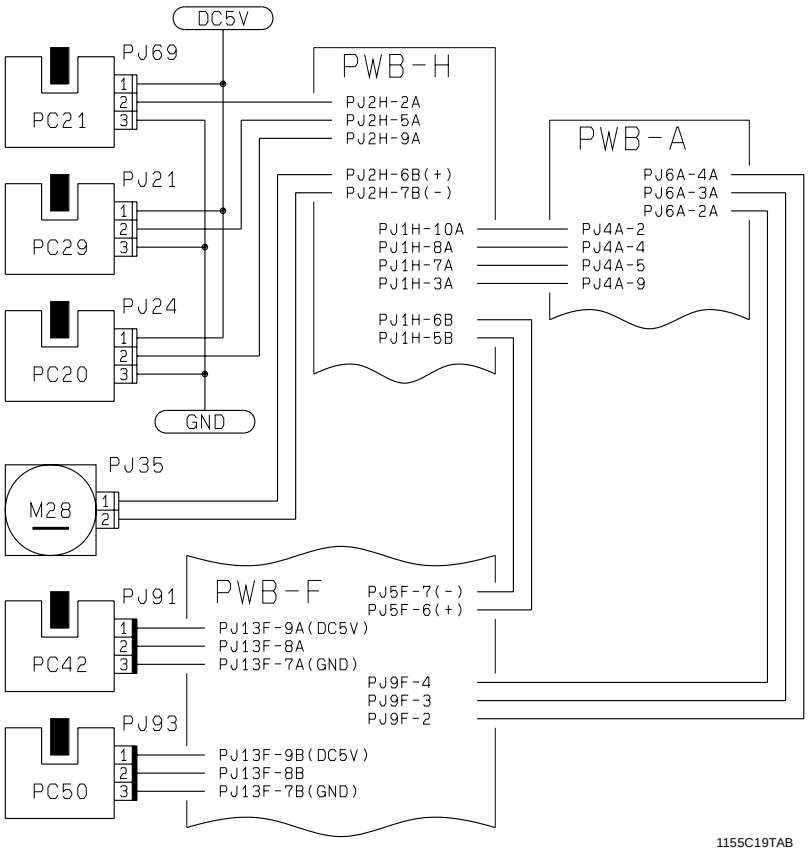
Step	Check Item	Result	Action
1	Does M24 start turning when the 1st Drawer is slid out and back in?	NO	Check for overloads and then check step 3 and onward.
2	Does the voltage across PJ4F-1 on PWB-F and GND change from DC0V to DC24V when step 1 is performed again?	YES	Check gears for overload and, if they are okay, change M24.
		NO	Change PWB-A or PWB-F.
3	Check PC25 for operation. Does the voltage across PJ4A-12 on PWB-A and GND alternate between DC0V and DC5V when step 1 is performed again?	NO	Check the PC25 pulse disk and, if it is okay, change PC25.
4	Is PC40 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A or PWB-F.
		NO	Check the PC40 actuator and, if it is okay, change PC40.

<Inch Areas>
◆C0920, C0921, C0924

Step	Check Item	Result	Action
1	Does M24 start turning when the 1st Drawer is slid into the copier and UN7 turned ON?	NO	Check for overloads and then check step 3 and onward.
2	Does the voltage across PJ6F-1 on PWB-F and GND change from DC0V to DC24V when step 1 is performed again?	YES	Check gears for overload and, if they are okay, change PWB-M1 or M24.
		NO	Change PWB-A or PWB-F.
3	Is PC40 fully operational? Make the input port check using “I/O Check.”	NO	Check the PC40 actuator and, if it is okay, change PC40.
4	Check PC25 for operation. Does the voltage across PJ4A-12 on PWB-A and GND alternate between DC0V and DC5V when step 1 is performed again?	NO	Check the PC25 pulse disk and, if it is okay, change PC25.
5	Is PC18 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A, PWB-F, or PWB-M1.
		NO	Check the PC18 actuator and, if it is okay, change PC18.

15) C0990 : 3rd Drawer Lift-Up Failure
C0994 : 3rd Drawer Elevator Motor M28's Failure to Turn

Relevant Electrical Parts	
3rd Drawer Paper Lift-Up Sensor PC42	3rd Drawer Elevator Motor M28
3rd Drawer Paper Empty Sensor PC50	3rd Drawer Elevator Motor Pulse Sensor PC29
3rd Drawer Lower Position Sensor PC20	Master Board PWB-A
3rd Drawer Overrun Detecting Sensor PC21	Drawer S/P Board PWB-F
	3rd Drawer Flexible Printed Circuit PWB-H



◆C0990

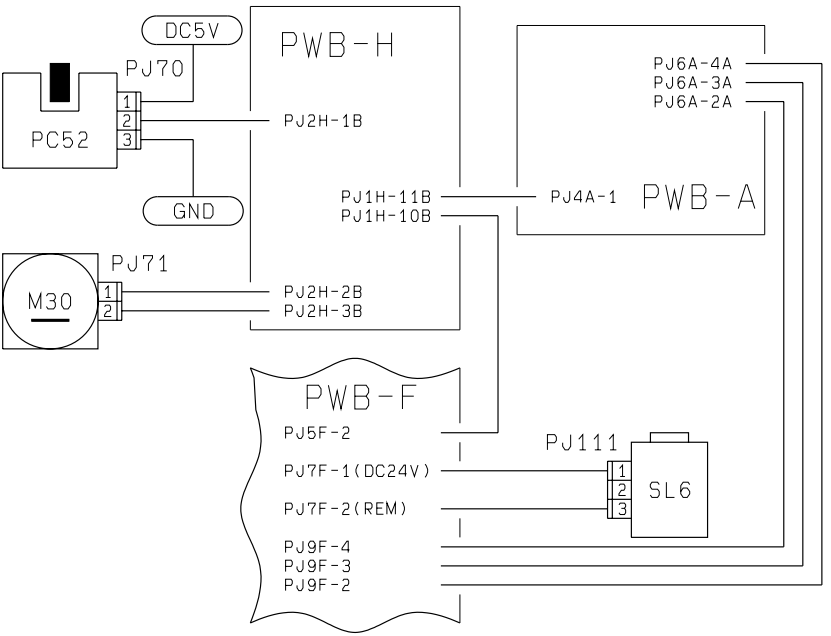
Step	Check Item	Result	Action
1	Is PC42 fully operational? Make the input port check using “I/O Check.”	NO	Check the PC42 actuator for operation and, if it is okay, change PC42.
2	Is PC50 fully operational? Make the input port check using “I/O Check.”	NO	Check the PC50 actuator for operation and, if it is okay, change PC50.
3	Is PC20 fully operational? Make the input port check using “I/O Check.”	NO	Check the PC20 actuator for operation and, if it is okay, change PC20 or PWB-H.
4	Is PC21 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A, or PWB-F.
		NO	Check the PC21 actuator for operation and, if it is okay, change PC21 or PWB-H.

◆C0994

Step	Check Item	Result	Action
1	Does M28 start turning when 3rd Drawer Paper Descent Key UN9 is pressed with the 3rd Drawer slid into the copier?	NO	Check for overloads and then check step 3.
2	Does the voltage across PJ5F-6 (during ascent) or -7 (during descent) on PWB-F and GND change from DC0V to DC24V when step 1 is performed again?	YES	Check gears for overload and, if they are okay, change M28 or PWB-H.
		NO	Change PWB-A or PWB-F.
3	Check PC29 for operation. Does the voltage across PJ4A-5 on PWB-A and GND change between DC0V and DC5V when step 1 is performed once again?	YES	Change PWB-A.
		NO	Check the PC29 pulse disk and, if it is okay, change PC29 or PWB-H.

16) C0996 : 3rd Drawer Lock Release Failure
C0997 : 3rd Drawer Shift Gate Motion Failure

Relevant Electrical Parts	
3rd Drawer Lock Solenoid SL6	Master Board PWB-A
3rd Drawer Shift Gate Position Sensor PC52	Drawer S/P Board PWB-F
3rd Drawer Shift Gate Motor M30	3rd Drawer Flexible Printed Circuit PWB-H



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◆C0996

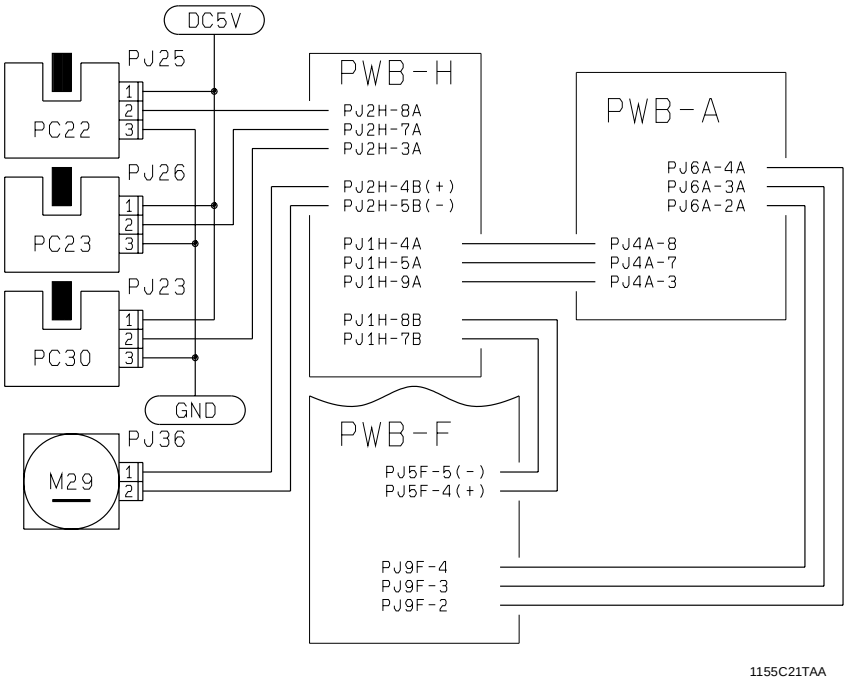
Step	Check Item	Result	Action
1	Check SL6 for operation. Does the voltage across PJ7F-2 on PWB-F and GND change from DC24V to DC0V when 3rd Drawer Paper Descent Key UN9 is pressed?	YES	Change SL6.
		NO	Change PWB-A or PWB-F.

◆C0997

Step	Check Item	Result	Action
1	Load paper only in the Shift Tray and slide the 3rd Drawer into the copier. Does M30 start turning at this time?	NO	Check for overloads and then check step 3.
2	Does the voltage across PJ5F-2 on PWB-F and GND change from LOW to HIGH when step 1 is performed again?	YES	Check gears for overload and, if they are okay, change M30 or PWB-H.
		NO	Change PWB-A or PWB-F.
3	Is PC52 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A.
		NO	Change PC52 or PWB-H.

17) C0998 : Shifter Transfer Failure
C099C: 3rd Drawer Shift Motor M29's Failure to Turn

Relevant Electrical Parts	
3rd Drawer Shifter Return Position Sensor PC23	3rd Drawer Shift Motor Pulse Sensor PC30
3rd Drawer Shifter Home Position Sensor PC22	Master Board PWB-A
3rd Drawer Shift Motor M29	Drawer S/P Board PWB-F
	3rd Drawer Flexible Printed Circuit PWB-H



◆C0998

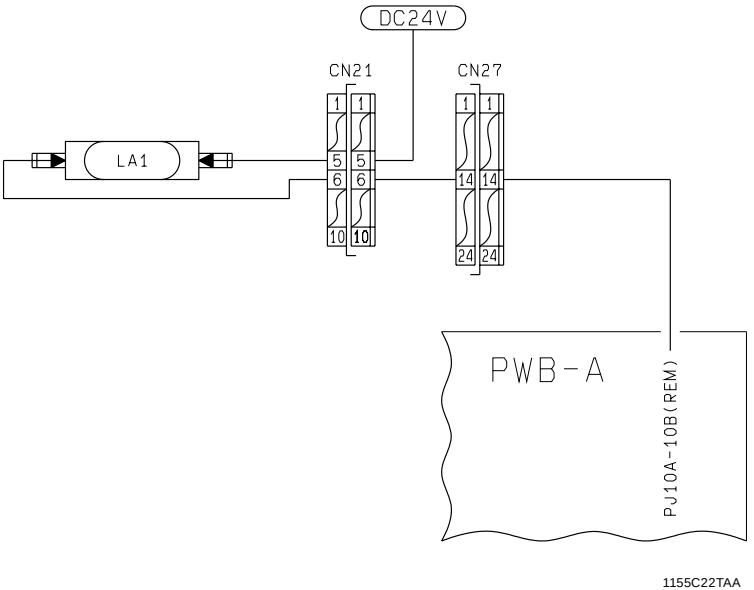
Step	Check Item	Result	Action
1	Is PC23 fully operational? Make the input port check using “I/O Check.”	NO	Check the PC23 actuator for operation and, if it is okay, change PC23 or PWB-H.
2	Is PC22 fully operational? Make the input port check using “I/O Check.”	YES	Change PWB-A.
		NO	Check the PC22 actuator for operation and, if it is okay, change PC22 or PWB-H.

◆C099C

Step	Check Item	Result	Action
1	Load paper only in the Shift Tray and slide the 3rd Drawer into the copier. Does M29 start turning at this time?	NO	Check for overloads.
2	Does the voltage across PJ5F-4/-5 on PWB-F and GND change from DC0V to DC24V when step 1 is performed again?	YES	Check gears for overload and, if they are okay, change M29 or PWB-H.
		NO	Change PWB-A or PWB-F.
3	Check PC30 for operation. Does the voltage across PJ4A-3 on PWB-A and GND change between DC0V and DC5V when step 1 is performed once again?	YES	Change PWB-A.
		NO	Check the PC30 pulse disk and, if it is okay, change PC30 or PWB-H.

18) C0E00: Main Erase Lamp LA1's Failure to Turn ON

Relevant Electrical Parts	
Main Erase Lamp LA1	Master Board PWB-A

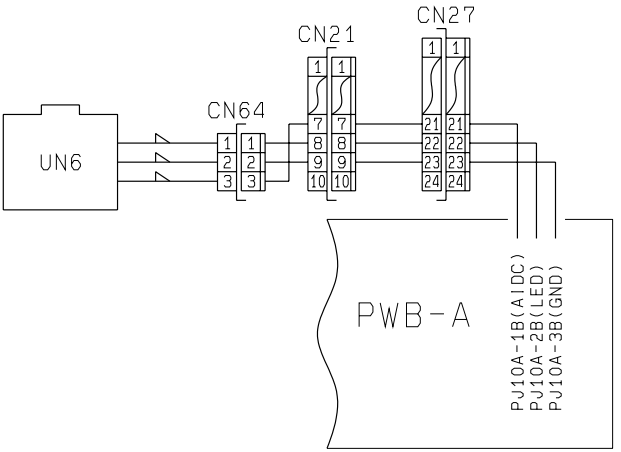


◆C0E00

Step	Check Item	Result	Action
1	Does the voltage across PJ10A-10B on PWB-A and GND change from DC24V to DC0V when the Start key is pressed?	NO	Change PWB-A.
2	Is the voltage across PJ10A-10B on PWB-A and GND DC24V while the copier is in the standby state?	YES	Change LA1.
		NO	Change PWB-A.

19) C0F24 : AIDC Sensor UN6 Contamination Correction Failure

Relevant Electrical Parts	
AIDC Sensor UN6	Master Board PWB-A



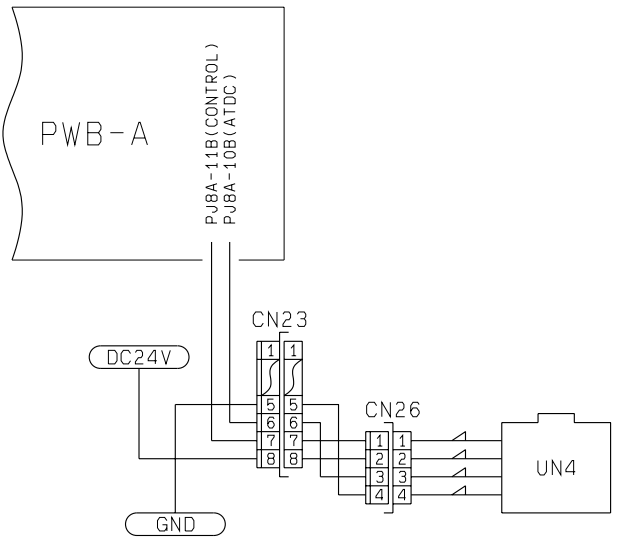
1155C23TAA

◆C0F24

Step	Check Item	Result	Action
1	Are PJ10A, CN27, CN21, and CN64 plugged securely into PWB-A?	NO	Plug them in securely.
2	Is the photosensor/LED of the AIDC Sensor contaminated?	YES	Clean UN6 and run the F5 operation.
		NO	Change UN6 or PWB-A and run the F5 operation.

20) C0F32 : ATDC Sensor UN4 Failure
C0F33 : Abnormally Low T/C as Detected by ATDC Sensor UN4
C0F34 : T/C Recovery Failure as Detected by ATDC Sensor UN4

Relevant Electrical Parts	
ATDC Sensor UN4	Master Board PWB-A



◆C0F32, C0F33, C0F34

Step	Check Item	Result	Action
1	Are PJ8A and CN23 plugged securely into PWB-A?	NO	Plug them in securely.
2	Does the voltage across PJ8A-10B on PWB-A and GND fall within the range of DC0.2V to DC4.5V during a copy cycle?	YES	Change PWB-A.
		NO	Change UN4 and developer and then run the F8 and F5 operations, in that order.

21) C10∗∗~C14∗∗

- These malfunctions are concerned with faulty symptoms as they relate to software, hardware, and communications. For remedial action change the board, check for cable connections, and turn OFF and ON the power.

Code	Action
C10∗∗ C11∗∗ C12∗∗	① Reset the malfunction and turn OFF and ON the Power Switch. ② If the same malfunction is still detected, check cables for proper connection and, if they are okay, change PWB-B.
C12C∗	① Run "Hard Disk Format" of "Image Memory" under "Function" available from the Tech. Rep. mode. ② If the same malfunction is still detected, change the Hard Disk Drive. ③ If the malfunction is again detected, change PWB-B.
C1300	① Reset the malfunction and turn OFF and ON the Power Switch. ② If the same malfunction is still detected, check the polygon driver, PWB-A, and connector and, if they are okay, change either the polygon driver, PH Unit, or PWB-A.
C1326	① Reset the malfunction and turn OFF and ON the Power Switch. ② If the same malfunction is still detected, check PWB-B MJ1 for proper connection and, if it is okay, change either PWB-B or PWB-A.
C1330 C1334	① Reset the malfunction, turn OFF and ON the Power Switch, and unplug the power cord and plug it in again. ② If the malfunction is still detected, change PWB-A. ③ If the malfunction is again detected, run "I.R. ⇄ Mem. ⇄ Prn" of "Image Memory" under "Function" available from the Tech. Rep. mode. If "NG" is shown, check the harness between PWB-A, PWB-B, and PWB-IB and, if the harness is intact, change the board.
C133B	Check cables for proper connection and, if they are okay, change the Finisher CPU board.
C13F0 C13F1	① Reset the malfunction and turn OFF and ON the Power Switch. ② If the same malfunction is still detected, check the PWB-J connector and, if it is okay, change either the PH Unit, PWB-J, or PWB-A.
C13F2 C13F3	Check the Trailing Edge Stop and Edge Guide mechanism and harness and, if they are okay, change PWB-A or PWB-F.
C13F4	① Reset the malfunction. ② If the same malfunction is still detected, select "Adjust" → "Printer" → "Registration (CD)" and make settings so that their total becomes less than 10. ③ If the same malfunction is still detected, replace the PH Unit.
C1401	① Reset the malfunction (i.e., turn OFF and ON the Power Switch). ② If the same malfunction is still detected, change PWB-IB.
C1402	① Reset the malfunction (i.e., turn OFF and ON the Power Switch). ② If the same malfunction is still detected, change PWB-IB.
C1410	① Reset the malfunction (i.e., turn OFF and ON the Power Switch). ② If the same malfunction is still detected, change PWB-IB.
C1426	① Reset the malfunction. ② If the same malfunction is still detected, change PWB-IB.
C1428	① Reset the malfunction. ② If the same malfunction is still detected, change PWB-IB.
C1429	① Reset the malfunction. ② If the same malfunction is still detected, change PWB-B. ③ If the malfunction is again detected, change PWB-IB.
C142A	① Reset the malfunction. ② If the same malfunction is still detected, change PWB-IB.
C1430	① Reset the malfunction (i.e., turn OFF and ON the Power Switch). ② If the same malfunction is still detected, change PWB-IB.
C143E	∗See the relevant option service manual.

Code	Action
C1440	① Check that the Original Glass is properly installed and then reset the malfunction and turn OFF and ON the Power Switch. ② If C1469 is shown, check the harness between IA and IB and the IA power supply. If they are okay, change PWB-IA or PWB-IB. ③ If C1440 or C1441 is shown, check the optical system and, if it is okay, change PWB-IA. ④ If the malfunction is again detected, change PWB-IB.
C1441	① Check the Original Glass for correct mounting, for possible extraneous light, and the position of the CCD Unit and mirrors and, if they are okay, change PWB-IA. ② If the same malfunction is still detected, change PWB-IB.
C1450	① Reset the malfunction. ② If the same malfunction is still detected, check the cables, timing belt, and other drive transmission mechanism from Scanner Motor M31 to the Scanner and, if they are okay, change PWB-IB.
C1461	① Reset the malfunction (i.e., turn OFF and ON the Power Switch). ② If the same malfunction is still detected, change PWB-IB.
C1462	① Reset the malfunction (i.e., turn OFF and ON the Power Switch). ② If the same malfunction is still detected, check the EDH harness and, if it is okay, change PWB-IB.
C1468	① Reset the malfunction (i.e., turn OFF and ON the Power Switch). ② If the same malfunction is still detected, change PWB-IB EEPROM or PWB-IB.
C1469	① Reset the malfunction (i.e., turn OFF and ON the Power Switch). ② If the same malfunction is still detected, check the harness between PWB-IA and PWB-IB and, if it is okay, change PWB-IA.
C1470	① Reset the malfunction. ② If the same malfunction is still detected, change PWB-IB.
C1471	① Reset the malfunction. ② If the same malfunction is still detected, change PWB-IB.
C1472	① Reset the malfunction. ② If the same malfunction is still detected, change PWB-IB.
C1499	Check the harness and change either PWB-IB, PWB-IC, or IR Cooling Fan Motor.
C14F2	Check the filter operation and harness and, if they are okay, change PWB-IB or PWB-IC.

22) The Copier Does not Turn ON

Relevant Electrical Parts	
Power Switch S1	DC Power Supply PU1
Lower Front Door Interlock Switch S2	Master Board PWB-A
Right Door Interlock Switch S3	Power Supply Board PWB-C
Upper Left Door Interlock Switch S4	Noise Filter Board PWB-D
Lower Left Door Interlock Switch S5	

Symptom	Step	Check Item	Result	Action
RY1 does not turn ON.	1	Is there an AC power supply voltage across PJ1PU-1 and 3 on PU1?	NO	Check the circuit breaker and power supply voltage. If they are okay, change PWB-D.
	2	Is the voltage across PJ2PU-1/-2/-3 on PU1 and GND DC24V?	NO	Check the fuse on PU1 and, if it is intact, change PU1.
	3	Is the voltage across PJ11C-4 on PWB-C and GND DC24V when S1 is OFF?	NO	Change PWB-C.
	4	Is the voltage across PJ11C-2/-3 on PWB-C and GND DC24V when S1 is ON?	NO	Check S1, S2, and S3.
	5	Is the voltage across PJ5PU-5 on PU1 and GND DC5V when S1 is ON?	YES	Check RY1.
			NO	Change PWB-A or PU1.

5. IMAGE FAILURE

1155SBT0501A

5-1. Image Failure Troubleshooting

- Image failures have many possible causes. For troubleshooting, it is necessary to determine whether a failure is attributable to:

  ① A basic cause or any other cause

  ② The input system (IR, memory) or output system (engine, memory).

  In this chapter, troubleshooting is divided into “initial checks” and “troubleshooting procedures classified by image failures.” If any image failure has occurred, first make the initial checks, then proceed to the corresponding image failure troubleshooting procedure.

1155SBT0502A

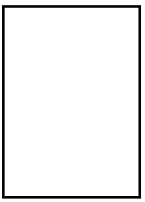
5-2. Initial Checks

1) Place of installation
   - Is the source voltage normal? Does the voltage vary greatly?
   - Is the copier installed in a hot, humid place or in a place where temperature varies sharply?
   - Is the copier installed in a dusty place?
   - Is the copier subjected to direct sunlight?
   - Is the copier level?
2) Copy paper
   - Is the recommended paper used?
   - Is the paper damp?
3) Original
   - Is the original written in light pencil?
     → Use the test chart to check the image.
   - Is the original transparent or are transparencies being used?
     → Place a blank sheet of paper on the original and make a copy.
   - Is the Original Glass dirty or scratched?
     → Clean a dirty glass, or replace a scratched one.
4) Adjust data and Level History data
   - Do the values set for “Adjust” and “Level History” fall within the specified ranges?
5) PM parts (supplies)
   - Have the PM parts (supplies), such as the PC Drum, Cleaning Blade, and others that affect image quality reached the end of the their cleaning/replacement cycles?
6) Adjustment items (registration, focus, etc.)
   - Among the adjustment items given in DIS/REASSEMBLY, ADJUSTMENT, is there any adjustment that may remedy the image failure?
7) Input system (IR, memory) or output system (engine, memory)?
   - Select "F12 Test Pattern" of "Function (Printer)" available from Tech. Rep. and produce a test pattern output.
     → If the test pattern output has the same problem as the copy image:
       → Check the output system.
   - Turn "ON" the "Criss Cross Mode" function available from User's Choice and make copies from two or more originals in the Sort mode.
     → If the image on the copy fed out crosswise has the same problem as that on the copy fed out lengthwise:
       → Check the input system.
     → If the image on the copy fed out crosswise has a problem different from that on the copy fed out lengthwise:
       → Check the output system.
   - Make a copy at a different zoom ratio.
     → If the enlarged or reduced copy has the same image problem as the problem copy:
       → Check the input system.
     → If the enlarged or reduced copy has a problem different from the problem copy:
       → Check the output system.

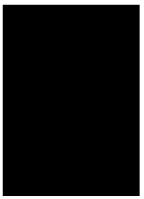
5-3. Troubleshooting Procedures by Image Failure

<Image Failure Samples>

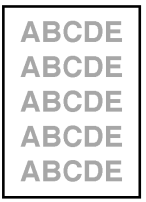
1) Blank copy



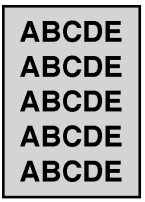
2) Black copy



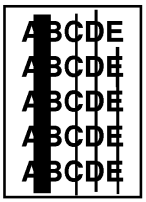
3) Low image density



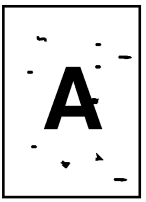
4) Foggy background



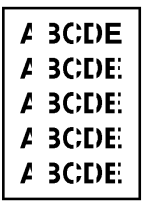
5) Black streaks or bands



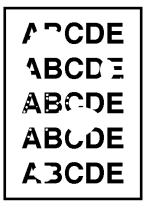
6) Black spots



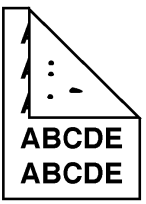
7) Blank streaks or bands



8) Void areas

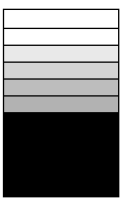


9) Smear on back



10) Uneven image density

11) Gradation reproduction failure



12) Rough image

13) Periodically uneven image

1155T001AA

1155SBT050301A

1) Blank Copy

Section	Step	Check Item	Result	Action
Engine	1	Is the PC Drum Charge Corona installed correctly?	NO	Install correctly.
	2	Are the Comb Electrode and grid mesh normal?	NO	Check and change if necessary.
	3	Is the wiring between PC Drum Charge/ Developing Bias HV HV1 and PC Drum Charge Corona normal?	NO	Correct the wiring.
	4	Is the PC Unit in position?	NO	Reinstall the unit all the way into the copier.
	5	Are the Ds Rolls in contact with the PC Drum?	NO	Reinstall the Developing Unit.
	6	Is the drive transmission mechanism to the Developing Unit in good condition?	NO	Check and change any defective part.
	7	Is the Image Transfer Corona wire installed correctly?	NO	Install it properly.
	8	Is the wiring between Image Transfer/Paper Separator HV HV2 and Image Transfer Corona normal?	NO	Correct the wiring.
	9	Is the paper guide shorted to the frame?	YES	Change HV1 or HV2.
			NO	Close the circuit properly.
IR	1	Are the mirrors and lens installed properly?	NO	Reinstall.
	2	Are the mirrors and lens dirty?	YES	Clean.
Memory	1	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “Input Image” is then run?	YES	Change PWB-B.
	2	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “I.R. ⇄ Mem. ⇄ Prn” is then run?	YES	Change PWB-B.

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2) Black Copy

Section	Step	Check Item	Result	Action
Engine	1	Is the PC Drum properly grounded?	NO	Clean or change the PC Drum ground plate.
	2	Is the developing bias contact normal?	NO	Clean or change the developing bias contact.
	3	Is the wiring between Image Transfer/Paper Separator HV HV2 and the developing bias normal?	NO	Correct the wiring.
	4	Are the PJs and connectors plugged securely into PWB-B and PWB-J?	YES	Change HV2 or PWB-J.
			NO	Plug them in securely.
Memory	1	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “Input Image” is then run?	YES	Change PWB-B.
	2	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “I.R. ⇄ Mem. ⇄ Prn” is then run?	YES	Change PWB-B.

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3) Low Image Density

Section	Step	Check Item	Result	Action
Engine	1	Is the PC Drum properly grounded?	NO	Clean or change the PC Drum ground plate.
	2	Are the Comb Electrode and grid mesh normal?	NO	Check and change if necessary.
	3	Is the wiring between PC Drum Charge/ Developing Bias HV HV1 and PC Drum Charge Corona normal?	NO	Correct the wiring.
	4	Is the Image Transfer Corona dirty?	YES	Clean or change the Image Transfer Corona.
	5	Is the copy paper damp?	YES	Change the copy paper.
	6	Are the Ds Rolls in contact with the PC Drum?	NO	Reinstall the Developing Unit.
	7	Is the developing bias contact normal?	NO	Clean or change the developing bias contact.
	8	Is the wiring between Image Transfer/Paper Separator HV HV2 and the developing bias normal?	NO	Correct the wiring.
	9	Select “Tech. Rep. Mode,” and “Level History” and check to see if the value for “ATDC Set” is correct?	NO	Replenish the supply of toner.

Section	Step	Check Item	Result	Action
Engine	10	Select “Adjust” and “Printer,” change the value for “Image Density” to a greater one (on the + end), and make a copy. Is the image density higher on the copy than before?	YES	This completes the procedure.
			NO	Change HV1 or HV2.
IR	1	Select “Tech. Rep. Mode,” “I.R. & EDH Check,” and “Function (I.R.)” and run “Scanning Check.” Does the malfunction code appear at this time?	YES	Follow the corresponding troubleshooting procedure.

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4) Foggy Background

Section	Step	Check Item	Result	Action
———	1	Is sunlight or any other extraneous light entering the copier?	YES	Protect the copier from extraneous light.
Engine	1	Is the Cleaning Blade dirty with foreign matter or paper dust?	YES	Clean or change the Cleaning Blade.
	2	Is the PC Drum dirty with foreign matter?	YES	Clean or change the PC Drum.
	3	Is the Sleeve Roller seriously contaminated?	YES	Clean the Sleeve Roller.
	4	Is the developing bias contact normal?	NO	Clean or change the developing bias contact.
	5	Is the Main Erase Lamp dirty?	YES	Clean the Main Erase Lamp.
	6	Select “Tech. Rep. Mode,” “Tech. Rep. Choice,” and “Printer,” change the value for “VG Adjust” to a smaller one (on the - end), and make a copy. Does foggy background occur on the copy?	NO	This completes the procedure.
IR	1	Are the mirrors and lens dirty?	YES	Clean the mirrors and lens.

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5) Black Streaks or Bands

Section	Step	Check Item	Result	Action
Engine	1	Is the PC Drum surface scratched or dirty?	YES	Clean or change the PC Drum.
	2	Is the PC Drum properly grounded?	NO	Clean or change the PC Drum ground plate.
	3	Does the Cleaning Blade make a correct lateral motion?	NO	Check the Cleaning Blade lateral movement mechanism.
	4	Is the Cleaning Blade warped or deteriorated?	YES	Change the Cleaning Blade.
	5	Is toner uniformly attracted onto the Sleeve Roller?	YES	Change the Developing Unit.
	6	Is the PC Drum Charge Corona wire cleaner at the home position?	NO	Check the corona wire cleaning mechanism.

Section	Step	Check Item	Result	Action
Engine	7	Are the Comb Electrode and grid mesh dirty?	YES	Clean or change the PC Drum Charge Corona. Check the toner suction mechanism for operation.
	8	Is the Upper Fusing Roller dirty with foreign matter?	YES	Clean or change the Upper Fusing Roller.
IR	1	Are the Original Glass, mirrors and lens dirty with foreign matter?	YES	Clean the Original Glass, mirrors and lens.
Memory	1	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “Input Image” is then run?	YES	Change PWB-B.
	2	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “I.R. ⇄ Mem. ⇄ Prn” is then run?	YES	Change PWB-B.

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6) Black Spots

Section	Step	Check Item	Result	Action
Engine	1	Is the PC Drum surface dirty with foreign matter?	YES	Clean or change the PC Drum.
	2	Are the PC Drum Paper Separator Fingers dirty with foreign matter?	YES	Clean or change the separator fingers.
	3	Is the Upper Fusing Roller dirty with foreign matter?	YES	Clean or change the Fusing Roller.
	4	Is there caked toner in the Developing Unit?	YES	Change the developer.
	5	Is the T/C ratio on the high side?	YES	Change the T/C ratio and make a copy.
Memory	1	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “Input Image” is then run?	YES	Change PWB-B.
	2	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “I.R. ⇄ Mem. ⇄ Prn” is then run?	YES	Change PWB-B.

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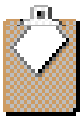
7) Blank Streaks or Bands



Section	Step	Check Item	Result	Action
Engine	1	Is the PC Drum surface scratched or dirty?	YES	Clean or change the PC Drum.
	2	Are the PC Drum Paper Separator Fingers dirty or deformed?	YES	Clean or change the separator fingers.
	3	Are the Comb Electrode and grid mesh dirty?	YES	Clean or change the PC Drum Charge Corona. Check the toner suction mechanism for operation.
	4	Is the Drum Charge Corona Wire Cleaner at the home position?	NO	Check the corona wire cleaning mechanism.
	5	Is the Image Transfer Corona wire dirty?	YES	Clean or change the Image Transfer Corona.
	6	Is the Image Transfer Corona Wire Cleaner at the home position?	NO	Check the corona wire cleaning mechanism.
	7	Is the Upper Fusing Roller dirty or scratched?	YES	Clean or change the Upper Fusing Roller.
	8	Are the Upper Paper Separator Fingers dirty or scratched?	YES	Clean or change the Upper Paper Separator Fingers.
	9	Is the Db plugged with caked toner or foreign matter?	YES	Remove foreign matter. Change the developer.
	10	Is the window on the underside of the PH dirty?	YES	Clean the window.
	11	Is the light path between PH to PC Drum dirty with dust?	YES	Remove the dust.
Memory	1	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “Input Image” is then run?	YES	Change PWB-B.
	2	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “I.R. ⇄ Mem. ⇄ Prn” is then run?	YES	Change PWB-B.

1155SBT050308A

8) Void Areas

Section	Step	Check Item	Result	Action
Engine	1	Is the image improved by loading new paper?	YES	Change the copy paper and instruct the user in how to store paper.
	2	Is toner uniformly attracted onto the Sleeve Roller?	NO	Check the Db value and amount of developer, and check the developer transport mechanism for operation.
	3	Is the image improved by turning the Paper Separator Corona Output Fine Adjustment Switches in the direction of a smaller setting? (See SWITCHES ON PWBs, TECH. REP. SETTINGS.)	NO	Clean or change the Paper Separator Corona wire.

Section	Step	Check Item	Result	Action
Engine	4	Is the paper guide shorted to the frame?	NO	Close the circuit properly.
	5	Is the Image Transfer Corona installed properly?	NO	Install the corona properly.
	6	Is the Image Transfer Corona wire dirty?	YES	Clean or change the Image Transfer Corona.
	7	Is the Lower Fusing Roller scratched or deformed?	YES	Change the Lower Fusing Roller.
	8	Is the grid mesh installed in position?	NO	Install the grid mesh properly.
Memory	1	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “Input Image” is then run?	YES	Change PWB-B.
	2	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “I.R. ⇄ Mem. ⇄ Prn” is then run?	YES	Change PWB-B.

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9) Smear on Back

Section	Step	Check Item	Result	Action
Engine	1	Are the Suction Belts dirty?	YES	Clean them and check the Developing Unit.
	2	Is the Image Transfer Corona dirty?	YES	Clean it and check the Developing Unit.
	3	Is the Pre-Image Transfer Guide Plate dirty?	YES	Clean it and check the Developing Unit.
	4	Is the Fusing Unit Entrance Guide Plate dirty?	YES	Clean it and check the Developing Unit.
	5	Are the Upper and Lower Fusing Rollers dirty?	YES	Clean or change the Upper and Lower Fusing Rollers. Check the Fusing Roller cleaning mechanism.
	6	Has toner spilled from the Developing Unit?	YES	Change the Developing Unit.

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10) Uneven Image Density

Section	Step	Check Item	Result	Action
Engine	1	Is the PC Drum grounded properly?	NO	Clean or change the PC Drum ground plate.
	2	Are the Comb Electrode and grid mesh dirty or deteriorated?	YES	Clean or change the PC Drum Charge Corona. Check the toner suction mechanism.
	3	Is the Image Transfer Corona dirty or deteriorated?	YES	Clean or change the Image Transfer Corona.
	4	Is toner uniformly attracted onto the Sleeve Roller?	NO	Check the Db value and amount of developer, and check the developer transport mechanism for operation.
	5	Is the paper guide shorted to the frame?	NO	Close the circuit properly.
	6	Is the image improved by loading new paper?	YES	Change the copy paper and instruct the user in how to store paper.
IR	1	Are the Original Glass, mirrors, and lens dirty with foreign matter?	YES	Clean the Original Glass, mirrors, and lens.
	2	Is the Shading Sheet dirty?	YES	Clean the sheet.
	3	Is the Exposure Lamp dirty or deteriorated?	YES	Clean or change the Exposure Lamp.
	4	Select “Tech. Rep. Mode,” “I.R. & EDH Check,” and “Function (I.R.),” in that order. Does “NG” appear when “Exp. Lamp Check” is then run?	YES	Change the Exposure Lamp.
Memory	1	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “Input Image” is then run?	YES	Change PWB-B.
	2	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “I.R. ⇄ Mem. ⇄ Prn” is then run?	YES	Change PWB-B.

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11) Gradation Reproduction Failure

Section	Step	Check Item	Result	Action
———	1	Is the Shading Sheet dirty?	YES	Clean the sheet.
	2	Is the image improved by loading new paper?	YES	Change the copy paper and instruct the user in how to store paper.
	3	Is the gradation unclear in the high-density areas?	YES	Decrease the value for "γ Table" available under "Printer" selected from "Tech. Rep. Choice" of "Tech. Rep. Mode."
	4	Is the gradation unclear in the low-density areas?	YES	Increase the value for "γ Table" available under "Printer" selected from "Tech. Rep. Choice" of "Tech. Rep. Mode."
	5	Are the PJs and connectors plugged securely into PWB-B and PWB-J?	YES	Change PWB-B or PWB-J.
			NO	Plug them in securely.

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12) Rough Image

Section	Step	Check Item	Result	Action
Engine	1	Has the developer PM counter reached near 40K?	YES	Change the developer.
	2	Are the Developing Unit and Db plugged with foreign matter or caked toner?	YES	Remove foreign matter and caked toner. If the problem recurs, change the developer.
	3	Is the Db gap correct as adjusted?	NO	Readjust by referring to DIS/REASSEMBLY, ADJUSTMENT.
	4	Is the Image Transfer Corona wire dirty or deteriorated?	YES	Clean or change the wire.
	5	Is the wiring between Image Transfer/Paper Separator HV HV2 and the Image Transfer Corona normal?	YES	Change HV2.
			NO	Correct the wiring.

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13) Periodically Uneven Image

Section	Step	Check Item	Result	Action
Engine	1	Are the Ds Rolls of the Developing Unit dirty with foreign matter or scratched?	YES	Clean or change the rolls.
	2	Are the Developing Unit drive gears cracked or dirty with foreign matter?	YES	Clean or change the defective gear.
	3	Are the PC Drum drive gears cracked or dirty with foreign matter, or the belt slack?	YES	Clean, change or adjust.
	4	Is the flywheel secured in position?	NO	Secure the flywheel in position.
	5	Are the gears cracked or dirty with foreign matter of the Transport Rollers and Synchronizing Rollers?	YES	Clean or change the defective gear.
	6	Is the Suction Belt drive gear cracked or dirty with foreign matter?	YES	Clean or change the drive gear.
	7	Are the Fusing Unit drive gears cracked or dirty with foreign matter?	YES	Clean or change the defective gear.
	8	Is the PH Assy installed securely?	YES	Change PWB-J or PH Assy.
			NO	Install the PH Assy securely.
	9	Is the PC Unit installed all the way into the copier?	NO	Slide the PC Unit all the way into the copier.
	10	Do the bearing bushings on the PC Drum shaft turn smoothly?	NO	Change the bearing bushings.
IR	1	Are the Scanner Motor drive gears cracked or dirty with foreign matter, or the belt slack?	YES	Clean, change or adjust.
	2	Is the Scanner Motor secured in position?	NO	Secure the motor in position.
	3	Is the Scanner installed securely?	NO	Install the Scanner securely.
	4	Are the Scanner Drive Cables wound properly?	NO	Wind the cables properly.
	5	Are the Scanner Rails damaged or dirty with foreign matter?	YES	Clean or change the rails.
Memory	1	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “Input Image” is then run?	YES	Change PWB-B.
	2	Select “Tech. Rep. Mode,” “Function,” and “Image Memory,” in that order. Does “NG” appear when “I.R. ⇄ Mem. ⇄ Prn” is then run?	YES	Change PWB-B.